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ABSTRACT

This report contains conference addresses that (1) deal with social and psychological forces influencing curriculum change and (2) discuss actual changes now taking place in a number of subject fields. Insights into the forces acting on the curriculum are presented by the authors of Part I. Arthur W. Foshay challenges educators to recognize the legislative, social, economic, and scientific forces working on curriculum and the school. William A. Bricker points to the contributions of the Skinnerian concept of reinforcement and shaping to our understanding of the process of learning. Donald Snygg contrasts the shaping concept with the concept of the cognitive field theory of learning in which learning is seen as an active process of search and discovery. Dwayne Huebner examines the relationship between the psychology of learning as presented by two theorists representing contrasting schools of thought and the implications of learning theories for curriculum building. William M. Alexander draws on these ideas to make predictions for the schools of the future. Part II contains papers issuing from seminars in the subject areas of art, music, vocational education, social sciences, and health and physical education. (Author/JF)

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Influences in CURRICULUM CHANGE

Papers from a Conference Sponsored by the
ASCD Commission on Current Curriculum Developments
New York, New York, December 1966

Edited by Glenys G. Unruh
and
Robert R. Leeper

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Contents

Foreword vii
J. Harlan Shores

Acknowledgments viii

The Setting ix
Glenys G. Unruh

Part I. Influences on Curriculum Designing 1

Shaping Curriculum: The Decade Ahead 3
Arthur W. Foshay

Shaping the Behavior of Students 13
William A. Bricker

The Cognitive Field Theory: New Understandings About the Person 21
Donald Snygg

Implications of Psychological Thought for the Curriculum 28
Dwayne Huebner

Shaping Curriculum: Blueprint for a New School 38
William M. Alexander

Part II. Forces Influencing the Subject Fields 49

Changing Conceptions of Artistic Learning 51
Elliott W. Eisner

New Curriculum Developments in Music Education 59
Bennett Reimer

New Directions in Social Sciences Education 74
John U. Michaelis

Vocational Education Looks to the Future 91
Gerald B. Leighbody

Changes in Health Education and Physical Education 100
Lester V. Smith

Members of the ASCD Commission on Current Curriculum Developments 115

Foreword

ASCD's Commission on Current Curriculum Developments limited registration to 400 educators at its December 1966 conference in New York City. The enthusiastic response of the 400 attending reflected the outstanding quality of the papers presented. In fairness to many whose registrations could not be accepted and to many others who seek facts and expert opinion about what is happening in the curriculum, this booklet is published.

A single title really was not appropriate for this publication. The first part clearly deals with social and psychological forces which are *Influences in Curriculum Change* and points to curriculum developments likely to result from these influences. The second part is not so much concerned with *influences* as it is with actual *changes* now taking place in a number of subject fields. Much has been written about recent developments in science and mathematics, and indeed these reports must constantly be rewritten for them to remain current, but it would be an error of real consequence to assume that there are no new developments in other areas of the curriculum. Highlighted in the second part of this booklet are current curriculum developments in art, music, health and physical education, social science, and vocational education. Both parts are handled in a scholarly yet readable manner by experts in the respective fields.

The Commission on Current Curriculum Developments is to be congratulated along with the authors and editors for bringing together these fine presentations.

October 1967

J. HARLAN SHORES, *President*
Association for Supervision
and Curriculum Development

Acknowledgments

THE Association expresses special appreciation to Arthur W. Foshay, William A. Bricker, and Dwayne Huebner, who, though not members of the Commission on Current Curriculum Developments, prepared and presented major papers for the conference and this booklet. Appreciation also goes to Bennett Reimer and Lester V. Smith who served as guest seminar leaders and wrote chapters.

The paper by Donald Snygg was edited by Arthur W. Combs from a transcription of a tape recording made during the address at the December conference. Donald Snygg's untimely death on February 1, 1967 has brought to a close the contributions of a brilliant mind to the literature on learning theory.

Other speakers at the conference than those reported here included Shelley Uman of the New York City schools, and Commission members: Edward D. Allen, Robert A. Bennett, Paul E. Blackwood, Robert B. Davis, Philip Lewis, and Robert S. Gilchrist.

The Conference would not have been possible without the work behind the scenes of the Washington ASCD staff, particularly of Louise M. Berman, then Associate Secretary, ASCD, now of the University of Maryland, College Park.

The final editing of the manuscript and production of this booklet were the responsibility of Robert R. Leeper, Associate Secretary and Editor, ASCD Publications. Technical production was handled by Mary Ann Lurch, Editorial Assistant, assisted by Doris Ann Kanterman and Claire J. Larson, Staff Assistants. Secretarial assistance was provided by Anne J. Miller of the University City, Missouri, schools.

The Setting

FOUR hundred persons met in New York City on December 2-3, 1966, to examine powerful contemporary influences on the curriculum as a whole, to discuss new developments in each subject field, and to look toward the future in curriculum planning. Major addresses of the conference, "Curriculum Designing for the Future," are presented in this booklet.

Insights into the forces acting on the curriculum are clearly presented by the authors of Part I. Arthur W. Foshay challenges us to recognize the legislative, social, economic, and scientific forces working on the curriculum and the school. William A. Bricker points to the contributions of the Skinnerian concept of reinforcement and shaping to our understanding of the process of learning. Donald Snygg contrasts the shaping concept with the concept of the cognitive field theory of learning in which learning is seen as an active process of search and discovery. Dwayne Huebner, following Bricker and Snygg on a panel, examines the relationship between the psychology of learning as presented by two theorists representing contrasting schools of thought, and the implications of learning theories for curriculum building.

The exciting challenge of drawing upon these stimulating and sometimes disturbing ideas to make predictions for the schools of the future was ably assumed by William M. Alexander.

The status of curriculum development in several subject fields is the content of Part II of this booklet. Seminars in the subject fields of foreign language, English, science, mathematics, art and music, vocational education, social sciences, and health and physical education offered conference participants opportunities to examine new frontiers. Discussions focused upon trends, objectives, conflicting issues and posi-

tions, teaching strategies, new media and materials, structuring of content, and evidence of effectiveness of the new curriculum developments.

In this booklet, papers are included on art, music, vocational education, social sciences, and health and physical education. In preparation are booklets on new developments in foreign languages, in social studies, and in reading and English.

Papers presented in the fields of mathematics and science are available upon order from the Association for Supervision and Curriculum Development as separate publications.

Influences in Curriculum Change and the conference for which the papers were prepared are among a series of conferences and publications created by the Commission on Current Curriculum Developments since its appointment by ASCD in 1961. The Commission has maintained liaison with national curriculum projects in the various curriculum areas of study and has communicated to its audience information on current curriculum developments as well as analyses and interpretations of these developments.

October 1967

Glenys G. Unruh, *Chairman*
ASCD Commission on
Current Curriculum Developments

Part I

Influences on Curriculum Designing

Shaping Curriculum: The Decade Ahead

ARTHUR W. FOSHAY[1]

WE CURRICULUM workers have speculated for a generation about what and who shape the curriculum. During the past ten years, it has seemed clear that we, the professional curriculum people, are not the main shapers of it. During the years since the mid-'fifties, the exciting developments in the subject fields and in certain aspects of educational technology have, indeed, changed what is offered students and how they are to learn. But has the shape of the curriculum as a whole changed? Has its broadest meaning changed? I do not think it has changed much. The last idea of any real consequence concerning the curriculum as a whole was the integration of subjects, and its operational counterpart, the core curriculum—an idea from the 'thirties. Even this idea did not change the curriculum much, we have to admit.

The curriculum, taken as the deliberate arrangement of the subject matter—Roy Pearce of La Jolla would say the *object* matter (meaning that which is the object of the students' attention)—has indeed responded in detail to the ideas of people like Zacharias and Bruner. But these ideas have been substituted for less adequate approaches one subject at a time, the way wood becomes petrified. The shape of the curriculum as

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a whole has not yet been subjected to the kind of criticism and analysis the various subjects have undergone. Perhaps, as a result of this one-at-a-time process, the curriculum has indeed hardened and become brittle. One can only hope not.

What are the chances that the *shape* of the curriculum will change during the next decade, the present shape having withstood the shocks of depression, war, and subject matter reform? Ought it to change? Let us examine these questions.

To do so, we have to consider what *shape* means. It means, I think, the design of the subjects and other deliberately instructive attempts (such as athletic coaching, dramatics, and school publications) into some coherent, purposive whole. So defined, we have to agree, I think, that team teaching, the ungraded school, and the discussion of specialism in the elementary school are essentially external to the question. They seek to deal with other matters, important in their own right, but not centrally concerned with the design of the curriculum as I have characterized it. It is one thing to propose a responsive, supple school organization and a more specialized teacher in order to offer greater depth in subject matter. It is another to conceive of the kinds of people we hope the schools will educate toward, and to design the whole in some appropriate way.

"Some appropriate way," as I say, has not been discussed intensively, and there is certainly no agreement on what it could, or should, be. We have not even developed terms to use in the argument.

I shall not try to develop such terms here. I mean only to urge upon us all the importance of doing so—to suggest an item on the educational theorists' agenda. Here, I shall limit myself to a discussion of the prospects for a general reshaping, as distinguished from the detailed reforms of the present.

Trends Affecting Curriculum

I shall mention several trends that seem likely to have a shaping effect in the curriculum, and which, in my opinion, ought to. I mention them because we will be called on (at least by our consciences) to accommodate them. With luck and intelligence, we might even accommodate in ways that will yield better curriculum patterns than we have now.

First, and I think most influential, is the trend in pedagogical talk. The tradition of education—our institutional habits and rituals and language—has always seemed to me to be more influential on our

professional behavior than anything else. Such "inside" habits as the Carnegie Unit and the nonsense of organization with built-in articulation problems continue in general practice two generations after we discredited them. We continue with myths about teaching method long after it has become obvious that methods do not exist outside the context of individual teachers who use them. And so on. But there are some trends in the educational conversation which may well affect the design of the curriculum.

Concern with General Education

Chief among these is the reemerging concern with general education. In 1961, when I spoke to the ASCD convention on the meaning of the then-new idea that the disciplines behind school subjects suggest how the subjects might be learned, it looked as though we would go through a period of intensive concern with our conception of subject matter, whereupon we would have to reexamine the question of fit. This seems much more evident now. It seems very likely that the redefinition and redevelopment of the concept of general education has reached the top of the educator's agenda. If it has not, it ought to.

The question of the broad meaning of a child's education is much too important to be left to anyone but the educationists in partnership with the philosophers. Such a partnership is called for by L. Arnaud Reid in Archambault's *Philosophical Analysis and Education* (London: Routledge & Kegan Paul; New York: Humanities Press, Inc., 1965):

> . . . better "educational theory," in its *interdisciplinary aspect,* can only emerge through real communication between experts in the different parts of the educational fields; . . . the philosopher's training . . . in the thinking together of different modes of understanding, gives him special qualification to . . . construct all-over *general theories* of education . . .

While Professor Reid does not explain who the "experts in the different parts of the educational field" are, he clearly means to consider them in their role as practitioners, and those of us who make curriculum construction a central concern are among them—I dare say *prima inter pares.* If we cannot measure up to this role, people will have to be found who can.

What can these people talk about that deals with the curriculum as a *whole?* I suppose they can combine their talents most fruitfully by explaining to each other what generative concepts exist in their fields that also explain broadly the human possibility. Let me illustrate.

The concept *inverse ratio,* from mathematics, applies very helpfully

to many social situations. There is probably an inverse ratio between inherited wealth and the tendency to enter the professions; between selectivity in European secondary schools and the total amount of mathematics knowledge in the population, between the depth of a teacher's training in a given field of instruction and the dogmatism of his beliefs about teaching method—and so on.

Relativity of space and motion is being taught, at a simple level, in the Science Curriculum Improvement Study elementary science program. I have heard a third-grader, just grasping the concept, ask, "How does anyone know what is true?" The same kind of richness rests latent in concepts such as *interaction, system,* and the idea of the *properties of objects,* all in the same program, along with *interdependence* and *ecosystem.* There are dozens more, each a central operational term in one or more of the redeveloped school subjects: *aesthetic surface, design, tension,* and *composition,* from the visual arts; the idea of *mimesis, archetype,* and *rhetoric,* from literature; the ideas of *fact, legend,* and *myth,* from history.

Concepts of this power and reach can, perhaps, be thought of as the principal components of a plan for a general education, if we take the term to mean knowledge that exists in many fields (i.e., is generalizable) and has relevance to many arenas of human behavior. This way of thinking would carry us far beyond our comparatively primitive current terms, useful as they have been: "problem solving," "critical thinking," "the method of intelligence," (since when was there *a* method?), "the complete act of thought," and other of our Dewey-based slogans. They would have the great virtue of connecting educational discourse with the intellectual mainstream.

There is more. Just over the horizon, perhaps only a year or so away, is a general reconsideration of vocational and technical education. There are several reasons for this. One is the existence of the Vocational Education Act, which is supporting some preliminary, exploratory work of great promise. The Ford Foundation, too, has supported some promising instructional programs in this field. We can expect continued encouragement (or pressure) from industry to deal with the field effectively, since there is a dangerous shortage of technically inclined people of good quality. The development of Gagné's concept of skill-clusters is promising, and others are also at work. Surely it is consistent with the values held by any American that vocational education ought to be a part of, not any longer apart from, general education. Developments in this field in Russia and France, especially, deserve our early

attention, lest we be humiliated again by being outdistanced. But I leave further discussion of this to those closer to it than I.

New Developments in Economics

If the strictly educational trends are the most powerful in shaping the curriculum, then the economic and social trends in our environment are surely next in importance—as anyone who lived through the 'thirties and 'forties knows in his bones. Much of what is likely to influence the curriculum in this sphere is already under discussion, and I shall avoid repeating it here. Our age of affluence has put more people into higher education than ever, with results in the short run known to all of us. The combination of size and the new phenomenon (new only in the U.S., however, not elsewhere) of the able, angry undergraduate will undoubtedly lead to reforms in higher education. However, other effects of the changes in the economy are less obvious.

For example, the notion of the national cost of the product of education is about to undergo critical study by some representatives of the redeveloped, new field that economics has become. Within ten years, new ways of thinking about who should study what for how long will be available. Economists of great stature are already engaged in the problem. One of the questions such people raise at once, for example, concerns the specificity of some of our programs. They point out that the economic phenomenon of *substitution* occurs when trained people are in short supply, or are too expensive. We develop paramedical personnel to do work formerly restricted to physicians. Engineers can teach mathematics if need be—and they have. In fact, the whole new phenomenon of the para-professional calls our present concept of specialized training into question.

In fact, the new economics has developed such momentum that we may expect it to penetrate deeply into the whole of the curriculum. The Task Force on Economic Education may yet be more successful than Mr. Frankel dreams, not to mention the hopes of such economic educationists as Meno Lovenstein. The increased predictive power of this field makes it evident that ours is a much more stable economic system than we had imagined. While single enterprises fail, the system does not. In a stable system, careers are built around fields of work, not single enterprises. People move easily, and therefore predictably they will move from job to job. The idea of loyalty to one's employer is rapidly vanishing—even among teachers and young professors. One

is loyal not to one's employer, but to one's field and one's peers. In the degree that such perceptions of the future affect one's curriculum choices, we may expect the shape of the curriculum to be influenced by the students' views of the economy.

Class and Race Tensions

Of the various social phenomena that will shape the curriculum, probably the most noticed is the war on poverty and its ugly handmaiden, racism. We whites have to get used to something the Negroes have known all along—that ours is a racist society; that the constant unspoken assumption throughout our culture and our nation—the filthy central core of it—is that some people are more human than others because of their race. It is too easy for us in education to forget how recently—it was near the end of the last century—the NEA was passing resolutions based on the assumption that Negroes were basically inferior, and how late—two years ago?—the NEA acted to erase racially segregated state associations from its ranks. We are in the midst of the agony this vicious, still active heritage has produced. We white school teachers, as a wise Negro grandmother told me once about myself—"are washed, but we ain't clean."

In the struggle, it appears just now that the organized leadership of the Negro revolt has come to believe that part of the answer is to be found in education of good quality. Since this is something that can be delivered if only we will it so, presumably progress will be made.

But the most specific curriculum implication is not there. It has to do with what we shall say to one another about the Negro in American life. The question is hot because of our filthy past and present in this area, and so it has not yet been formulated effectively. We still retreat to stereotypes: poor Carver, poor Booker Washington—what sins your names are used to cover over! We have first to admit to ourselves that we have committed an historic crime at least as great in scope and destructive power as the German crime against the Jews. And as the Jews are on the German conscience, so are the Negroes on ours, even if some Negroes, like some Jews, want no such public role. The enormity of the crime itself propels them—and the rest of us—into the necessity of a period of national spiritual regeneration.

As educators, our task in this massive expiation is central. We are required to tell the next generation, black and white, the ugly truth about this aspect of their heritage, and to design a curriculum that will free them from it. We, who know no such freedom, are

required to lead naive children to a knowledge we lack. The blind are required to lead the innocent.

I turn, with a guilty sense of relief, from this dirty business to more objective problems.

One consequence of economic affluence and technological change has been the development of the Instant Community and the New Suburb. I live in one of these high-anxiety suburbs, and most of my friends live in others. The real romantics of our day stay in the central city and try to take advantage of what it offers by way of human experience and contact with the high culture, meanwhile trying to rear their children as if nothing out of the way were happening.

It is a commonplace to compare the characteristically embittered, skeptical city school teacher with his relatively peaceful colleague in the suburbs. Most of the curriculum development of the past eventful ten years has been undertaken in suburban schools, where the ambitious middle class lives. It is easy to predict that this politically explosive, socially fragile separation will collapse during the next few years. We could probably make progress by asking how the curriculum could be shaped in a way that would permit social class integration of city and suburb, since such an integration surely is part of the solution. I do not think that a special inner-city curriculum is part of any enduring solution, whatever its short-term value may be.

The class and race tension of our time, not to mention the pressures generated by our century of wars, and the development of the mass citizen army, and all the other horrid inventions we know so well, have had all sorts of consequences.

For example, our free press has become part of the problem, not part of the answer. The dynamics of journalism have led the press to simplify and sensationalize all kinds of news in order to trap the reader's attention. In education, the press makes as much news as it reports; it sees the educational scene not as an array of quandaries, but as a queer world of good guys and bad guys. Everywhere in journalism, complex educational problems are trivialized.

Most of the fault for this situation lies with the journalists, but not all of it. There is a serious associated failure in our educational leadership. The plain fact is that we are dull copy. There is no way to turn dull copy into something of general interest and importance—as important as education is, for example—that does not involve taking out the dullness. Chet Huntley's infamous "back to the sack" broadcast of several years ago has to be understood as the professional effort of a conscientious man to offer a vivid example of a real fault. The

fault was aimlessness in the curriculum. In trying to bring it home, Huntley had a kind of journalistic mid-air collision, which (as my son likes to quote from an Air Force manual), "is the most unprofessional thing a pilot can do." That is, he simplified the problem beyond recognition, thus trivializing the issue and casually insulting thousands of schoolmen.

What has all this to do with the curriculum? A good deal. For one thing, the public can no longer afford to be the prisoner of the journalist's need to be vivid at the expense of objectivity. Children in school have to learn how to read a newspaper, a magazine, how to interpret what is broadcast. This could be done, perhaps, by repeatedly comparing the journalist's report of events with the raw material the report was based on. If more people understood the difference between what is vivid and eye-catching, and what is central, we would ultimately have a more adequate press.

For another, let us consider the case of *Why Johnny Can't Read*, Flesch's sensational, essentially dishonest book of a decade or so ago. The book was serialized in a good many newspapers. It was interesting to observe that the local school systems with weak leadership, as already judged by the profession, reacted by going on a phonics binge, and that those with strong leadership replied in the press, grasping the opportunity this offered them to improve their reading programs in certain tried-and-true ways, such as increasing the number and size of their school libraries, employing reading specialists and identifying slow readers early.

The curriculum will indeed be shaped by the press where the leadership is weak and no effort is made to talk vividly and interestingly to the public. Since the press is the principal way open to us for talking to the public, and to the teachers as well, we had better learn how to speak clearly about what is central, while observing the pragmatic necessities the journalist must live with.

Effects of Legislation

I turn to another shaping force—legislation. What can we expect in this field? Some present trends are apparent. For one thing, there is evidence of a considerable disenchantment with educational research. Funds for all kinds of federal programs in education have been reduced from their former levels. But funds for the application of what is already known have fared much better than funds to increase knowledge.

Head Start and the Title III centers fare better than a proposal to study fundamental matters.

People in curriculum work have worried for generations about state legislatures that mandate the curriculum, and with good reason. Now, because of the Congressional tendency to support action programs at the expense of research, we have to become concerned with the possibility of a federally mandated curriculum. While both the Congress and the U.S. Office of Education are exceedingly sensitive to the possibility of federal control of the schools, they tend not to see the subtle effect of legislation that will have the same consequence despite their intent. Much that is backward about vocational education, for example, arises from the unexamined bureaucratic interpretations of Federal legislation in this field, now several generations old. It does not follow that there should be no such legislation. What follows is that the educationists, acting in concert, have to study and restudy the interpretations that grow around legislation as it ages.

Most legislation now being proposed is intended to deal with the problems of specified groups of people. The problems are usually defined in terms that fit the population in question. Such legislation is intrinsically shortsighted. We have a job to do: to teach the legislators how to design farsighted educational programs—programs that focus on educational problems, not on persons. This will be difficult, for such formulations may seem cold and impersonal. But it can be done, as programs like the research training program, the ERIC program, and some aspects of the old National Defense Education Act and the ESEA illustrate.

Influence of Education in Other Lands

I save the most puzzling, and possibly the most influential problem area for the last. I refer to the fact of our shrinking world and the impact of the European and Japanese educational experience on ours.

We have already seen how foreign experience can degenerate into mere competition—I refer to Admiral Rickover's well-meant, foolishly formulated comparisons.

I have been associated with an exceedingly interesting, potentially important series of international studies involving educational researchers from 12 countries, since 1959. The current study, just completed, compares achievement in mathematics at the secondary level. The findings deal with the educational consequences of such national policies as operating highly selective as against comprehensive secondary schools;

the decision to refuse university education to elementary school teachers, the effects of homework, "dictatorial" classroom methods and climates, and so on. The study has been successful. We have a large new grant to carry it forward, European foundations are contributing to it, and one may predict that such studies will grow in number. At present, there are several, though this is the largest. Moreover, anthropologists are being drawn into education, thus adding a fresh new dimension to international studies. Hundreds of American and foreign educational leaders are working in concert, on a sustained basis.

It is predictable that we will be more and more conscious of foreign educational successes and failures. It is high time. We lost our uniqueness as the only large nation with a real mass school through adolescence, about ten years ago. Now, every country in Western Europe carries as large a proportion of its population as we do through to age 15, most of them to age 16. Japan does nearly as well as we do through age 17. They have caught up with us in numbers, and they are ahead of us, in some ways, in quality. They watch us. It is time we stopped being merely exhortative about international understanding and got down to doing it in our own field.

In this paper, which is intended to start a conference, I have touched on many topics without developing them. That task belongs to the participants. However, I would like to close by calling to your attention my sense of the top priorities. Here they are, therefore, listed:

1. A new definition of general education
2. A redefinition of teaching about the Negro in America
3. Active attention to new developments in economics
4. Close study of the educational experience in Western Europe, Russia, and Japan.

This is, of course, a huge job. May we here be the ones to measure up to it. Someone will.

Shaping the Behavior of Students

WILLIAM A. BRICKER[1]

THE topic of this paper is shaping, a simple and very powerful means for controlling and changing the behavior of children. In shaping, stimuli that operate as reinforcements are given to a child immediately following the occurrence of a particular, desired bit of behavior (a response). Across periods of time, the differential reinforcement of desired forms of behavior substantially increases the rate or probability of these desired behaviors and correspondingly decreases the rate or probability of undesirable (non-reinforced) bits of behavior.

The technique of shaping has grown out of the experimental analysis of behavior, as described by B. F. Skinner of Harvard University. The contribution that Skinner has made to our understanding of the process of learning, and, as a consequence, the improvement in techniques of instruction is just starting to be recognized in the field of education. To those of us who have become interested in studying behavior using the experimental analysis approach initiated by Skinner, terms such as *teaching* or *instruction* are synonymous with the concept of *shaping*. My comments here are directed to the analysis and utilization of the concept of shaping in educational instruction.

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The effectiveness of shaping is quite dependent upon the efficacy of the reinforcing stimuli that are being used. The efficacy of reinforcements is, in turn, dependent upon the current state of the individual. The bulk of the problems in classroom motivation can be related to the efficacy of reinforcement, the state of an individual, or both. The term "motivation" in the educational literature has the characteristics of a Doppelgänger, in that it is frequently described as the soul of learning and yet exists only as a substanceless ghost. Many call on its name but few can manipulate the conditions that determine the extent of its presence or absence. The term *motivation* is used so frequently because even the most casual observer of student behavior is sensitive to the wide variation in the amount of academic behavior emitted by various students in a particular class. Problems arise when variations in motivational states of the student are viewed as a result of the student's internal state and not as a consequence of variations in environmental events (differential reinforcement).

To many teachers, a child who is highly motivated is an ideal student who has developed a cooperative, industrious attitude because of a long, careful history of interaction with parents, teachers and friends. Such a teacher would not readily believe that any child in his classroom could be made an ideal student by manipulation of the environmental contingencies for that student. One of the most powerful factors of shaping is the speed with which drastic changes in the motivation level of children occur. Some of the major problems in the classroom that are associated with low or absent motivation have been described in detail by Skinner in a recent *Saturday Review* article entitled, "Why Teachers Fail."[2] Failure due to low motivational states can be eliminated easily and efficiently.

Studies of Reinforcement

The existence of effective reinforcers for a given individual implies a motivated individual. There are several conventional means for isolating reinforcing stimuli. One example described by Bijou and Sturges (1959) used candy such as M & M's, gum drops, mints, small Hershey bars, candy corn, sour balls, jelly beans, and Tootsie Rolls, other foods such as raisins, cookies, peanuts, honey, and currants, and liquids such as milk and fruit juices as possible reinforcing stimuli. Bijou and Sturges also tested the reinforcement value of such stimuli as plastic

[2] B. F. Skinner. "Why Teachers Fail." *Saturday Review*, October 16, 1965. p. 80.

trinkets, small toys, charms, stuffed animals, pictures, stickers, and mechanical toys. While the consumables were found to be generally more reinforcing than the manipulatables, many individual differences were apparent which indicated that the group norm would be a poor source for the selection of the best reinforcing stimulus for a given child.

A somewhat similar means for attempting to establish reinforcement hierarchies was described recently by Orlando and Tyler (1966). In this study, M & M's, Cheerios, trinkets, and pennies were compared across a group of retarded individuals. While the penny tended to be the preferred reinforcer for most of the children, others selected M & M's or trinkets on trial after trial. In general, these methods for selecting reinforcing stimuli involved the presentation of a wide range of potential reinforcers to a child and then empirically determining which were effective.

A second means for finding effective reinforcers, and thus a procedure for altering motivation, is to manipulate the deprivation state of the individual and then use stimuli associated with the deprivation as the reinforcers. In one study (Wolf, Risley, and Mees, 1964), the child was deprived of food for fixed periods of time, and then his breakfast or lunch was given a bit at a time as reinforcers for the wearing of glasses (necessitated by a cataract operation) and for the production of verbal behavior (the child was mute at the onset of the investigation). In another study (Gewirtz and Baer, 1958), social deprivation was used, following which social stimuli became effective reinforcers.

While selecting empirically valid reinforcers or using deprivation-associated stimuli are effective for isolating or producing reinforcing stimuli, they are difficult, if not impossible, to use in a school setting. Parents resist placing their children on deprivation schedules for meaningful periods of time. Teachers, principals, parents, and adults in general resist the use of tangible reinforcers of any variety, even though such stimuli are more effective in motivating behavior than is the procedure of using aversive consequences such as withdrawal of privileges, detention or the administration of failing grades. Why we are so willing to use aversive consequences while rejecting positively reinforcing, tangible stimuli is a point that I find difficult to understand. Nonetheless it is consistent with the policy of most schools. However, the rejection of these fairly simple means for producing motivated behavior does not eliminate other possibilities.

Recently David Premack (1965) described a controversial approach to reinforcement and motivation. In essence, Premack stated

that reinforcement is derived from the relative frequency of behavior and not from stimuli that provide the occasion upon which the behavior can occur. To determine the reinforcement hierarchy for a given individual, one simply gives him access to an adequate environment and then records the amount of time he spends in the various activities that are possible in that environment. Premack's hypothesis suggests that the behaviors which occur most frequently (have the highest probability) would be the most reinforcing. To change behavior, a teacher (or other contingency manager) need only set up a situation in which a low probability behavior is followed immediately by a high probability behavior. This contingency will be associated with an increase in the frequency of the low probability behavior.

Lloyd Homme (1966) described several cases in which Premack's principle was used as the basis for determining and using reinforcements. In one example with nursery children the teacher followed small amounts of sitting quietly in chairs by saying "everybody run and scream, now." By slowly increasing the amount of sitting behavior required and reducing the amount of running and screaming, the sitting behavior became a predominate and voluntary form of behavior in that setting. Homme also described several groups of high school dropouts for whom the procedure of high probability contingent upon low probability behavior was built into a contract which controlled the kind of tasks each person did each day. By using this technique, low probability behavior such as solving arithmetic problems was followed by high probability behavior such as spending money. This method of obtaining reinforcements allows for great versatility of reinforcements within a classroom. Any type of activity can operate as a reinforcer as long as its probability of occurrence is higher than that of the response that it follows.

Reinforcing Responses

Other means of manipulating the motivational structure of students are available also. For example, the use of generalized reinforcers in the form of tokens has been used with retarded, psychotic, and delinquent populations to increase motivation. Teaching machines have been found to be intrinsically reinforcing in that simple progress through the program and frequent correct responses maintain behavior across long periods of time even in the absence of other reinforcing stimuli. An investigation that is taking place under my direction at Peabody involves an analysis of the characteristics of programs of instruction that will

intrinsically reinforce continued performance by kindergarten culturally disadvantaged children. In summary, no matter what means are required for motivation, they will be found more quickly if one searches for reinforcers in the outside world rather than trying to determine a student's internal state. There are reinforcers for everyone and the delivery of each is associated with a change in behavior. The teacher must seek the particular set of stimuli which will reinforce each student's behavior for most effective learning to occur.

The second major aspect of shaping involves the nature of the responses that are to be reinforced. When terms such as "understanding" or "knowing" (arithmetic, for example) are used in the classroom the teacher is tempted to *tell* the student what he should know or understand. However, when "respond" is substituted for "know," instruction takes on a different form. A child knows or understands arithmetic when he responds correctly by recognizing numerals, combining numerals in the presence of the plus sign, taking away numerals in the presence of the minus sign, and performing the other operations that are part of the content of arithmetic. Changing the emphasis from passive knowledge to active emission of responses focuses instructional attention on the various kinds of responses that have to be emitted and the relative ease or difficulty of emitting each. The explication of the responses that must occur and the order in which the responses should be elicited is contained in the program of training. All instruction is based on a program of training—a fairly fixed sequence of presenting stimuli and eliciting responses. The quest of the shaper is to make each program of training more adequate through empirical validation.

A program of training exists in a particular content area. The areas could be arithmetic, reading, spelling, geography, or any other course of instruction in the curriculum as long as these areas meet certain minimal requirements. These requirements include a specification of the forms of behavior that constitute a terminal status in the course. This specification must indicate the various responses that the student must be able to emit and the stimulus conditions that must be present or absent in order for each response to be considered appropriate. For example, arithmetic responses usually consist of numbers, so a program in arithmetic would describe all of the number responses that the child would be required to make. But the important aspect of the terminal state is that the child must emit these number responses in the presence of the appropriate stimulus conditions. "Two plus two equals . . . ." is a stimulus condition in the presence of which the response "four" is reinforced and all other number responses are declared wrong (not

reinforced). Regardless of the area of content, the program must contain descriptions of the terminal forms of behavior.

A second requirement in a program is a means for assessing the initial state of an individual in terms of what responses exist in his repertoire and whether they are controlled by appropriate stimulus conditions. The assessment of the student's initial state makes possible a determination of whether the specific program is the appropriate vehicle for moving his behavior or whether a more basic or more advanced program is required. The final requirement of a program is that it contain a linear series of steps starting with simple material and moving sequentially to the form of behavior described as terminal by the program. Once these requirements have been met the program can be evaluated.

Evaluating Results of Shaping

Just as psychological tests are judged to be good or bad on the basis of their specific validity and reliability values, programs of training can and should be evaluated on the same grounds. A *valid* program is one that is capable of moving the behavior of a single individual from a defined starting point (initial state) to a defined ending point (terminal behavior state). The extent to which the program accomplishes this change is the extent to which the program is valid. However, for the program to have general utility it needs to be valid for a large number of people and to do this the program has to be *reliable*. The reliability requirement can be evaluated in terms of how many people having the specified initial behavior were moved to the terminal behavior as a consequence of the program. Although no standards have been set by convention, we might assume that a reliable program of training would work for 90 percent of the people for whom the program was constructed.

Programs must also be evaluated in terms of *efficiency*. Since a program represents a path from one form of behavior to a more advanced form, it is reasonable to ask if this program provides the shortest path. The use of geography as an analogous situation is too strong to resist. The first program developed in a particular area is much like the first map of a wilderness in that it specifies a trail from one location to another, but only additional trails will provide the opportunity for determining which is the most efficient path. The teacher-consumer should demand to know the empirically determined efficiency of various programs in terms of instructional time and response expense.

I am currently engaged in research efforts to formulate programs

in introductory reading and arithmetic. The work at Peabody is not drastically different from efforts by Bijou at the University of Illinois; Kidder and Greene at Rainier School in Buckley, Washington; Birnbrauer and Lawler at Murdock Center in North Carolina; and surprisingly similar to individuals with different theoretical orientations, such as William Fowler at Chicago and O. K. Moore at the University of Pittsburgh. The reason for the similarity of the various products appears to be that the most efficient paths in these areas are few in number. Studying the everyday learning of children in areas such as reading or arithmetic may reduce theoretical differences among investigators to zero because of the similarity of experimental findings. The answer to the question of how children learn will be found in the program of training that most efficiently moves the behavior of children from relatively naive to relatively competent states of behavior.

All of the work on programming and efforts to improve instruction in general have produced some interesting side effects. Some attempts to improve the behavior of emotionally disturbed, autistic, and mentally retarded children using behavior modification techniques have led me to formulate a means of coping with disruptive emotional behavior using what one of my students labeled "educo-therapy." I am sure that the term has been used before. However, the emphasis of this approach is that disruptive emotional behavior is the consequence of inadequate instructional technique; principally inadequate reinforcement schedules and inadequate programs of training. In the cases in which we have been able to improve reinforcement schedules and programs of training, much of the deviant emotional behavior of the children has dropped out. I have presented the details of this position elsewhere, but I feel we should be aware that benefits other than simple improvement in academic behavior can be derived from the application of carefully structured attempts to shape the behavior of students.

In summary, shaping is a procedure that is a technological extension of the experimental analysis of behavior that can be used as an exciting new means to improve the instructional process. Intrinsic to the procedure of shaping is a means for evaluating and improving what we currently describe as motivation. Shaping also involves a procedure for explicating a sequence of instruction in the form of a training program which focuses investigation on responses and the order in which they can be most easily brought into existence. The use to which the process of shaping can be put in the classroom is limited only by the time and ability of those who would like to improve existing instructional activity.

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The Cognitive Field Theory: New Understandings About the Person

DONALD SNYGG[1]

I THOUGHT the cognitive field theory of learning was covered pretty well in a chapter that I wrote in the ASCD 1966 Yearbook[2] and as that is available to most readers, I will not have to discuss it in detail and can concentrate on its implications for curricular problems. This theory postulates that an individual's behavior is completely determined by his perceptual field; that is, by his perception of the whole universe, including himself, at that instant. It also postulates that the perceptual field is organized so that outside events and objects are always perceived in the way that will cause the least change in the field. Behavior is a way of changing the field to get better organization.

From this point of view, changing behavior results from change in the perceptual field. More efficient behavior, that is, learning,

[1] On February 1, 1967, two months after the conference in which he presented this statement, Donald Snygg, University Professor, State University College, Oswego, New York, passed away quite unexpectedly. This paper has been edited by Arthur W. Combs, Professor of Education, University of Florida, Gainesville, from a tape recording of the address. Combs and Snygg are well-known for their book, *Individual Behavior*. New York: Harper & Row Publishers, Inc., 1959.

[2] Donald Snygg. "A Cognitive Field Theory of Learning." In: *Learning and Mental Health in the School*. 1966 Yearbook. Washington, D. C.: Association for Supervision and Curriculum Development, 1966. pp. 77-99.

results from the learner's discovery of some aspects of his situation that enable him to reach the goal he is pursuing at that time. Learning, from this point of view, is thus an active process of search and discovery. The learner first perceives the situation as a relatively homogeneous whole and then explores it for those details and relations that will enable him to reach his goal and so satisfy the need that is most apparent to him at that time.

Use of a Reinforcement Concept

In the shaping techniques that have been described, the results are consonant with cognitive field theory, but the explanations are a little different. From the cognitive field point of view, the principal shaping technique is that of progressively limiting the attention of the learner to smaller and smaller parts of the field. This leads him to make the particular discovery that the teacher wants him to make earlier than he would if his explorations ranged over larger areas.

Now, when we think of applying this to school situations, three problems arise. The first comes from the fact the previous speaker mentioned, that we cannot use food as the incentive in school. For a discovery to take place, the subject must be looking for something. We can assure that laboratory animals and children we are dealing with in such experiments will be looking for something by seeing to it that they need food and then giving them a pellet every time they perform an act that is in the program we have set up for them to follow. To be sure laboratory animals will be interested, we starve them down to 75 percent of body weight and so practically guarantee that an animal will search for food. To do this in a classroom is quite a problem.

You can use Confederate money as a goal with feebleminded children, but probably not for long. It is too bad that parents and public sentiment do not let us use such drastic means of setting goals, because if the learner does not want the goals built into the program, he will not follow the program. A good mark, a word of praise, a sign of approval from a teacher—these things are often sought by the highly competitive, academically oriented children. But those children are not the ones about whom we worry most. If we think of learning in terms of reinforcement to positively promote efforts to discovery, what can we use as a reinforcing agent for the nonacademic child, the disadvantaged child? Also, how can we ensure, when we are dealing with more than one child at a time, that it is not the other children who are doing the reinforcing?

The second problem is the problem of transfer. If one person gives the reinforcement, will the person continue the reinforced acts when that person is not present? The spectacular results that are often obtained with animals by reinforcing techniques are achieved by training in a very simple environment where competing stimuli are kept to a minimum. To be sure that our subjects will notice what we want them to notice and do what we want them to do, we train them in apparatus where there is little else for them to notice and little else for them to do. When Pavlov was using his reinforcing techniques, the Russian government covered the streets outside his laboratory with tanbark so his animals would not be distracted by competing stimuli and not do the things they were expected to do. This is a little difficult in a school situation.

An educator, remembering that the primary goal of education is to change children's behavior in *later* life and *outside* of school, might properly ask if the experimental animals that have learned in these simple situations can find the cues and apply the solutions they have learned in the training apparatus in other situations where the environment is much more complex and the cues are harder to find. The answer is that generally they cannot. As a matter of fact, it is very seldom that anyone even tries to see whether they can. It is considered that they have learned if they perform as expected in the apparatus. This learning is generally so specific to the situation in which they have been trained that little transfer is obtained. This is training and not education.

I do believe that training techniques and principles have a definite place and could be extended to enlarge a subject's ability to transfer his learning into other situations. The progressive introduction of more and more competing stimuli and continual changes in location of the apparatus and essential cues are obvious things to try. Shaping techniques might even be used to teach methods of search, and I hope this might be what you are doing. That is indeed education. But we must face the fact that such training will not be short or cheap.

This brings us to the third problem that confronts us when we use any theory of learning that uses the concept of reinforcement. The decision to reinforce an act or not to reinforce it is made by the teacher or the programmer on the basis of his judgment of whether the subject's act is desirable in that situation. An act which does not conform with the teacher's idea of what is good, proper, and effective will not be reinforced. Using this method, conventional behavior is going to be reinforced. Steps toward creative and inventive behavior will not. The first steps toward

inventive behavior cannot be recognized by the teacher as effective steps because these are novel things.

Use of Cognitive Field Theory

I believe the cognitive field theory provides a more adequate basis for curriculum theory. I cannot design a curriculum, but I can talk from the point of view of this theory about some of the things that need to be considered when we plan a new curriculum.

First, the matter of pupil motivation: During the past ten years we have accumulated what seems to be conclusive evidence that all the higher animals, probably including man, have an overriding urge to explore, to discover and to learn. They do not have to be wooed by prizes. One of Harlow's monkeys at the University of Wisconsin spent 17 hours without interruption working and reworking a simple puzzle with the only reward an opportunity to look out a small window to see what the experimenter was doing. Danver at Cincinnati has found that his rats, in conformity with the perceptual differentiation model of learning used in cognitive field theory, prefer progressively more complex sections of the maze, abandoning each section as soon as they become familiar with it for one that is more complex and consequently more difficult. They do not go from the difficult to the easy; they go from the easy to the difficult.

W. R. White, in a now classic paper published in 1959, has proposed that the basic goal of human behavior is a feeling of competence. From the cognitive field point of view, all behavior is an attempt to maintain and increase the organization of the phenomenal field. Since that part of the field which represents the future is always incomplete and, therefore, poorly organized, a residual and insatiable need that persists when all others are satisfied is the individual's need to reassure himself about his ability to deal with the future. He tries to do this by gaining a greater and greater feeling of personal worth and value.

If these things are true, it follows that for a curriculum to engage a student's time and attention and gain any useful degree of personal involvement, it will have to be about the things and the problems he perceives to be real and true and important. Ultimately, if he uses the opportunities such a curriculum affords for new discoveries about the world and about himself, it will help him to get a better picture of a larger reality and what *is* truly important. But in the beginning it must start from where he is and from what he believes. A curriculum which is so far removed from the student's concept of reality that its

content does not seem real to him cannot involve him and his problems. At the most, he will attack them only to placate the teacher or think of them as part of an interesting game having no relation to real life and no value outside the schoolroom or after the final examination. Such an understanding demands in a curriculum a great deal of freedom for the teacher to vary both content and strategies. You have to have built-in procedures for backing up or trying something else. This demands that a teacher be a real professional: a professional being a person who is presumably trained to deal with the unique case, in a situation that has never before arisen.

Second, the ideal curriculum will give each child an opportunity to behave according to his own perceptions and to discover its inadequacy by immediate observation of what happens when he acts on these perceptions. New ideas, new concepts, new perceptions which have not been put to this test have not been put to the test of action and remain words to be used in examinations but they cannot be fully accepted in real life. The consequences of the child's actions are most conducive to change if they are perceived as inevitable, automatic, and independent of anyone's whim or judgment. Marks, praise, criticism, and other consequences supplied by the teacher are perceived by the students as consequences of the teacher's decisions, of the teacher's will and not of their own acts. So they are not very effective. (I think, incidentally, that it would be better, for that reason, to have the reinforcement in shaping supplied by a machine than by a teacher.) The consequences that are obviously supplied by the teacher are not, therefore, taken as reliable indicators of what the consequences would be outside of school.

The reinforcement theory seems to me to imply that optimum learning takes place when the learner makes no mistakes, thus allowing each act to be reinforced or a maximum amount of reinforcement. In contrast, I should say, the cognitive field theory implies that learning takes place most readily when the learner makes a mistake; that is, when the consequences of his act are different from those he expected so that he has to change his view of the situation to perceive it in a different way.

An efficient curriculum will provide students with opportunities to put their concepts into action and will encourage them to do so. As I explained in the ASCD 1966 Yearbook, this will involve a considerable change in our marking system, and, if you are interested, I would like to have you read it. I think it is important.

Third, new concepts, to be effective and to be remembered, have to be discovered by the student, not communicataed by the teacher. I

find that in many discussions of concepts in the new education, persons who should know better are confusing concepts with definitions, and supposing that you can just tell people and they will acquire a concept. *Problems* have to precede answers. There is nothing so useless as an answer for which you do not have a problem. And to be sure problems are *real* problems for the student, even the problems must be discovered. Here we are in a real strategic dilemma. Obviously, children starting from scratch cannot catch up with, let alone surpass, the conceptual progress the whole human race has made in thousands of years. Moreover, the teacher must give some guidance and some assistance. It is, however, the amount of assistance that a teacher should give in facilitating discovery that is the question.

Certainly the teacher should provide instructional material, and, by the way, this is a way of shaping—narrowing the field or enlarging it with the instructional materials you supply. The teacher must supply a social situation and example that will promote the discovery and development of student concepts and skills. Perhaps, the most favorable situation for discovering a concept is a situation in which the student has the opportunity to see someone he respects, and with whom he can identify, use the concept to solve a problem the student is helping him solve. The apprentice method is an old one, but so far it is the only method found to be effective for training scientists. Maybe we can use it more in the school. If children see us using concepts, they have more chance to discover the concept. As I have said, restriction of the student's exploratory activity to the areas the teacher believes most fruitful is another way of speeding the discovery process. Most of the shaping techniques are an example of this. The Socratic method is another.

Unquestionably limiting the area allowed for exploration has to be done, otherwise a child will not live long enough to learn the things he needs to learn. But excessive restriction should be avoided. It is ineffective if authority is so openly used to restrict the field of differentiation and action because the student will inevitably believe then that he might have found a better answer elsewhere if he had only been allowed to look there. This would not be bad if he then proceeded to go and do it after school. But if he is not much involved in the problem anyway, as is usually the case, he will merely distrust the teacher's answer without bothering to find another. In any case, excessive narrowing of the field of inquiry can seriously interfere with the student's development and testing of hypotheses compatible with his own experience, and thus reinforce his idea that school is not about anything real. Dozens of generations have admired Socrates, but from what

I have read, the victims of his dialogues usually felt beaten but unconvinced.

Fourth, the evaluation of practices of any curriculum must be consonant with the purpose of that particular curriculum. Generally, a major purpose of any curriculum is the development of an interrelated body of concepts that will enable the student to deal with new problems in other situations. In such curricula facts are important if they lead to discovery, understanding, and testing of concepts and generalizations, but they are not important in themselves. In such curricula factual questions are inappropriate. Evaluation should concern itself with the student's ability and desire to use the curricular concepts in new situations. All evaluations should be diagnostic. The purpose is to help both teachers and students discover the consequences of their actions. The teacher discovers the consequences of his teaching and the student discovers the consequences of his acts, and thus both can reevaluate them.

One last point—I have not mentioned the implications of the importance of the perceptions of self in this point of view. If our behavior is completely determined by the perceptual field, an important part of that field being our perceptions of our self, people will not behave in ways that are inappropriate to self-perceptions. People must believe, for instance, that they can achieve something beforehand or they will not undergo the agony required of doing a difficult thing. There are many implications of that available in other places. I do not want to talk about them now.

The last point is this. The central purpose of all curricula is the maximization of human resources to help young people to become healthy productive citizens, happy people, wise voters, who take their places in society and do their share of its work. Every teacher in every subject must attack this objective directly by providing a student with opportunities for experiences which will help him to perceive himself as a person who is needed, to see himself as an active participant in the human enterprise. The reason for including any particular subject in the curriculum is the fact that it can contribute opportunities for developing skills and experiences that will help the student to achieve the abilities, attitudes, and concepts of himself and the world which will establish his value to society and consequently to himself.

Implications of Psychological Thought for the Curriculum

DWAYNE HUEBNER[1]

UNRAVELING the relationship between psychological language and curriculum is no simple task, for we lack historical and philosophical perspective. Therefore I must begin with two items of the faith that guide my professional activities. The first is that if curriculum is a discipline, it is not a knowledge-producing discipline. It is an environment-producing discipline: disciplined praxis. If it is a discipline, it has a history that shapes the activity of the professional, and it has forms of criticism that can make it rational. As a discipline, then, it could be used to comment upon other disciplines and activities.

The second is that the discipline of curriculum, if it exists, has been led astray by an overdependency upon the category "learning." Clearly, this category must be one of the tools of the curriculum person. It is not, however, the major category. It is extremely unfortunate, for instance, that a writer could make the statement that "Education is for learning,"[2] rather than stating that "Learning is for education" or "Learn-

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[2] Robert M. Gagné. "Educational Objectives and Human Performance." In: *Learning and the Educational Process.* J. D. Krumboltz, editor. Chicago: Rand McNally & Company, 1965. p. 4.

ing is a part of education." Our major category is "education." If the postulated concept "learning" is needed, it is but one of the conceptual tools by which the curriculum person builds his special world. In some ways the curriculum person has been introduced into a *cul de sac,* albeit a fruitful one for the recent past and present, by the uncritical acceptance of the concept "learning."

By stating these two items of my professional faith, I wish to emphasize the point of view that the field of curriculum is not simply the mirror image of psychological knowledge, or of any behavioral science knowledge. In other words, neither psychological knowledge, nor the knowledge of other behavioral sciences serves as a template to stamp out curricular practices or actions. Knowledge within the behavioral sciences is but one tool, among many, that the curriculum specialist must use in building and caring for his special world. The problem then, in dealing with the relationship between psychological knowledge and the curriculum, is to seek clarification of the role of psychological thought in this possible discipline of curriculum—the discipline which builds or constructs situations and environments that educate.

Before undertaking this, it might be necessary to reaffirm my conviction that psychology, in-and-of itself, is an independent discipline, with its own *raison d'etre.* It is composed of its own "Society of Explorers," to use Polanyi's term[3]; explorers who search for truth, warranted assertions or theories to serve as policy guides for further experimentation. Psychological knowledge, as a product of a society of explorers, is self-correcting and has built-in forms of criticism which govern the use of the knowledge in man's future. However, when psychological knowledge is taken out of that society of explorers and used by other men in other occupations, it is yanked out of its self-correcting context and has the possibility of becoming dated and misused. The user risks reifying it, when all he meant to do was to make it an instrument.

Yet once a tool is objectified, sedimented out into the habits of a social group, it becomes difficult to uproot or difficult to discard for display in the museum of tools that once had their time and function. Within the society of explorers, psychological knowledge is validated by its truth value, however that value is assigned. Within a world or environment building discipline, psychological knowledge must be

[3] Michael Polanyi. *The Tacit Dimension.* New York: Doubleday & Company, Inc., 1966. pp. xi-108.

validated by its usefulness, and must compete in the market place of other useful knowledge tools.

Categories of Usefulness

At least two categories of this usefulness can be identified. The first might be identified as its disclosure use; the second as its technological use. A definition of the technological use is relatively easy. It is the distinction which is made between the physical sciences and the fields of engineering. Knowledge produced within the society of explorers of the physical world is taken over and used by the engineers to make goods or to establish operations. In one sense, it might be said that the knowledge produced by the scientists is, through the work of the engineers, embodied into the ongoing world of things and processes. Atomic theory is embodied in atomic bombs and nuclear reactors; cybernetic theory is embodied in computers and data storage and retrieval systems. In the same way, then, psychological theory or aspects of it can be said to be embodied in certain educational materials, and certain organized behavior patterns of the teachers. More of this later.

The disclosure use is perhaps more difficult to explicate. The term is borrowed directly from Ramsey's *Models and Mystery*,[4] in which he refers to the movement in science from picture models to analogue models. The first are scale replicas of processes or structures assumed to exist in nature; while the second make no such assumption but instead provide "insights" by which the "light dawns" or in which something new is disclosed. This sense of disclosure reflects Heidegger's definition of truth, an unveiling of that which was veiled. A disclosure model in the rigorous sciences, if it is a good one, is prolific in "generating deductions which are then open to experimental verification and falsification."[5]

However, in the human sciences the value of a disclosure model is not simply this ability to generate deductions, but what Ramsey calls the "empirical fit" in personal situations. The test of the empirical fit is "how stable the assertion is as an overall characterization of a complex, multi-varied pattern of behavior which is impossible in a particular case to specify deductively beforehand."[6] The use of a theory

[4] Ian T. Ramsey. *Models and Mystery*. London: Oxford University Press, 1964. pp. ix-74.

[5] *Ibid.*, p. 14.

[6] *Ibid.*, p. 38.

for disclosure, then, is to provide insight into a situation or person, an unveiling of what was there all the time, or a restructuring of perception so that new patterns of relationship or significance can appear.

Two lines of thought which follow from this idea of the disclosure use of scientific theories should be made explicit. The first relates Ramsey's notion to the distinction made by Thomas Kuhn in his *The Structure of Scientific Revolutions*.[7] He makes a distinction between normal science and revolutionary science. In normal science, the working scientists accept the prevailing paradigms which have been offered as the basic explanatory structures of the scientific community and try to fill in the many missing parts. However, a time comes when anomalies accumulate and a new explanatory paradigm is necessary. This involves an overthrow of the older paradigm and the establishment of a new tradition within the scientific community. It seems appropriate to refer to these new paradigms as new disclosure models, which open up a world previously unanticipated and which is rife with new exploratory possibilities. Whereas the older paradigms might serve as disclosure models for some people or in some situations, the new one is a cultural disclosure, an opening in the great mystery of being. Thus there are revolutionary changes in the worlds of science—the Copernican revolution, the Darwinian revolution, and the Einsteinian revolutions. It seems that there are also revolutions within the behavioral sciences and within psychology.

The other line of thought which this notion of disclosure suggests is that disclosure is not limited to scientific models. In fact, Ramsey refers to the possibility of disclosure models in theology. Disclosures come not only from the sciences, but from all of man's creative enterprises—his poetry, his philosophy, his drama, his religion, his art, and indeed his technology. In building his world, whether symbolically or physically, man projects a bit of himself into the world and thus unpeels another layer of the skin that encloses him. Is this not what McLuhan is saying in his *Understanding Media: the Extensions of Man*[8]: that by externalizing or extending his nervous system via the electric and electronic media man becomes aware of certain qualities of his being that have previously escaped notice?

Using these distinctions to discuss the relationship between psychology and the shaping of curriculum, it can be postulated that psychological

[7] Thomas S. Kuhn. *The Structure of Scientific Revolutions*. Chicago: The University of Chicago Press, 1962. pp. xv-172.

[8] Marshall McLuhan. *Understanding Media: the Extensions of Man*. New York: McGraw-Hill Book Company, Inc., 1964. pp. xiii-364.

knowledge serves first as one instrument of disclosure. It helps reveal to the curriculum person what it is to be a human being. But it is crucial to insist that it is but one instrument, not the only instrument. To shape a curriculum, all of man's viable disclosure models must be used—his sciences, his philosophies, his humanities and arts, and his theologies—for the student is too precious, indeed too sacred, to be entrusted to the disclosures of the behavioral sciences.

Psychology and the Curriculum

What are the implications of this for the shaping of the curriculum? First, that any psychological model might be used as a disclosure model for a teacher, supervisor, or curriculum builder. By wearing the spectacles of a particular psychological model for a time, the world of people might appear differently, and new possibilities for action, for feeling, and for thinking can appear. A distinction must be made whether we like it or not, between appearance and reality, between Kant's noumena and phenomena. We must recognize that the world as we learned to see it, ourselves, and others, is not necessarily the world as others see it, or as we might see it with different cognitive spectacles. Hence, any new psychological theory is a device for checking our accustomed world to be sure that we are not simply contemplating our navel in selfish self-repose.

These new psychological theories are not necessarily the revolutionary theories that Kuhn talks about. They are more apt to be the gradual filling out of the broad theoretical structures suggested by others long ago. Are we not still trying to come to terms with the Freudian revolution—that man's unconscious is a potent force in his behavior, however we define that unconscious and that force? Are we not still filling in the details, through normal psychological science, that man's behavior is influenced by the information that impinges upon him from the environment? This is an insight we associate with Thorndike but we should not forget Locke and Hume. Are we not still filling in the details that we associate with the near revolutionary theory of the Gestaltists, that man and his world are shaped by the way he perceives or cognizes his world? But this, too, might be more readily associated with Kant or Husserl than with Wertheimer or Koffka.

Again, we must insist upon disclosures from the other fields of man's great endeavor. The educator has been indoctrinated with the positivistic fallacy—that the world as it seems, or if you wish, as we know it, is

the world as it is.[9] This leads us to the circular search, a tail-chasing activity whereby we study what man seems to be in order to understand him, and then use this knowledge to project the next steps. From this process comes the question of whether "ought" can be developed from "is," and of course the predominant opinion is that "ought" does not follow from what "is." The reverse of this is more apt to be true—that the "is" can follow from the "ought." By this statement, I intend that the world as it is known by the behavioral scientist need not be the world that is brought into the school. The knowledge discovered or constructed by the behavioral scientist can be used to help build this world, through its technological instrumentality; but it need not, indeed should not, be used to specify the overall design of that world. The specification of the overall design must be made with the aid of the other great, indeed revolutionary, disclosure models that have been projected by man.

Currently, it seems to me, some of these models center upon the spoken word. Man, Dasein, is the being-in-the-world who speaks. But his speech springs not simply from within. Rather, it is a result of two conditions. The first is that man is a being who hearkens to the world, a being who listens, a being whose life is a response to the call and summons of the world. The second condition is that the horizons of this world are temporal horizons—man is surrounded by his history. Man is embedded in this history which is his shell—his house. As Heidegger would say, language is man's house of being. I think that this image can be traced into the sources of the Judeo-Christian tradition; that it finds expression today in the works of Heidegger, Merleau-Ponty, and other existentially oriented philosophers and theologians; and that it could be used to examine the linguistic-analytic tradition of today. Obviously, I cannot go into these details in this paper. I can only suggest that the implication for curriculum is that we must design schools and educational environments which call forth responsible speech from our students. The word "responsible" is, of course, the catchword and by it I would suggest critical dialogue with people and with the environment.

To me, then, the "ought" for schools is derived from the great disclosure models devised by man. Existing behavioral sciences are no longer providing revolutionary disclosure models; they are currently

[9] Herbert Marcuse. *One-Dimensional Man.* Boston: Beacon Press, 1964. pp. xvii-260; and *Reason and Revolution.* New York: Oxford University Press, 1941; and Boston: Beacon Press, 1960. pp. xvi-431.

operating within the realm of normal science—filling the gaps and building up the anomalies that might provide new revolutionary paradigms in the future. This is not to say that existing theories and newly emerging conceptions within psychology and the behavioral sciences cannot be disclosure models for individuals operating within schools, for frequently we remain unaware of our particular biases or orientations. In fact, even if aware, it does no harm to try on new spectacles for a change. It is simply to say that within our culture disclosure models now exist that are not being used to shape schools. Perhaps they are not being used because educators are not aware of their existence, or because these educators have accepted uncritically the bill of goods offered by the behavioral sciences. More probably they are not being used because we lack the means to implement them. It is in the creation of means that I believe the behavioral sciences can, and indeed are, making the greatest contribution to curriculum today. Through the technological fallout from psychological theories the educator can make possible the transformation of the "oughts" from the great revolutionary disclosure models into the "is" of school life.

Environments That Enable

Let me assume for the sake of discussion that you accept my basic disclosure model—that the being, man, is known by his hearkening and speaking to the world in which he lives. The word "speaking" must, of course, be qualified to include all of his expressive modes. The task, then, and one not unbeknown to the curriculum designer, is to provide environments which make it possible for the individual to hearken to the world, to speak authentically from the center of his own being, and to engage in the ensuing conversation. In the past this has been impossible because of size of groups, insufficient or inadequate materials and media, or lack of organizational and pedagogical skill of school people. It seems to me that these are basically technological deficiencies and also, of course, economic problems. It is at this point of technology that psychological knowledge provides the necessary help. Psychological and other behavioral science knowledge can be used, technologically, to build the special conditions which realize the hearkening-speaking model. In other words, the revolutionary models identify openings into the fabric of man's being. Technology paves the roadway and builds the bridges so this opening, an "ought," can be entered, becoming an "is."

Examples are not too difficult to identify today. The development

of programmed materials and computer-based instructional techniques can be considered an embodiment or, to use a more loaded word, an incarnation of learning theory, specifically reinforcement theory. We should rejoice in this, for it means that learning theory is now being used to help build the world, rather than being used to shape ideologies. It means that it is now possible to build into the environment those conditions by which certain skills can be learned, thus freeing the teachers and the students from organizational structures and demands that inhibit good education. Now that this component of the educational phenomenon is being embodied in the thing-world, the technological world, the curriculum person can return to his essential task of educating the student. This is the symbolic meaning of O. K. Moore's autotelic environment. This is the value of good computer-based simulation techniques. This is the significance of the good skill development auto-instructional materials that are being constructed. The process has been one of identifying certain characteristics of people in given situations, in this case, changes in behavior. These characteristics are used to build environmental conditions which increase the power of the individual to live in his world. By building these aspects into the world we free man to interact with man for the sake of conversation, not for the sake of control. By using learning theory to build educational environments we make it possible for the teacher to enter into significant dialogue with the student as a human being, not simply as a learner. This is the basis for my original distinction between learning and education. Now that the learning concerns can be taken care of through a technological environment, what can education become?

Setting for Learning

Motivational theory serves a different function in the construction of the technological world which can help educate. The clue is taken from motivational research in industry and advertising. Motivational theory is used to help build the interface between the student and the technological environment and to determine the informational system to be used between them. In the past, motivational theory has been interpreted as a way to manipulate the student in order to interest him in something. A more realistic interpretation is that motivational theory is used to build the environment and to specify the communication system in such a way that the student will get involved. Hence, different interfaces must be provided for different kinds of students, just as different types of auto-instructional materials must be built for students

with different learning styles. With a wide variety of materials with different interfaces, the teacher is further freed to enter into dialogue with the student—to hearken to his speaking.

Finally the studies in cognition and genetic epistemology offer the curriculum worker the tools for creating or making the scenes or stages within which education takes place. An example of this is the work of Educational Services, Incorporated, as illustrated by the examples that Bruner gives in his "Man: A Course of Study."[10] His theories of cognition are being used to select and build a variety of materials about tool making, social organization, and child rearing. The process is one of studying certain characteristics of people and using these characteristics to build educational materials. Learning theory is used to determine sequence and the responsiveness of the fabricated environment. Motivational theory is used to fabricate or construct the interfaces and informational system. Cognitive theory, however, is used to select those aspects of the world of others that are brought into the school.

There is great similarity here between some of the findings of, say, Berlyne[11] in his studies of directed thinking and the studies of Eisenstein[12] on film making. Eisenstein makes much of the montage which is made up of a variety of shots. He stresses the notion of conflict as essential in the construction of montage and even in filming individual shots. Interestingly enough, Berlyne expresses concern for the collative properties which lead to directed thinking, whereas Bruner[13] refers to the conflicts or, at least, lack of equilibrium among the enactive, iconic, and symbolic modes of representation as stimuli to cognitive movement. My point here is that if we consider cognitive theory not as something that explains what happens in the head of a student as the psychologist does, but as a way of designing the scenes or settings within which education occurs, then aspects of the curricular way of thinking will come close to the ways of thought that Eisenstein used to make his films. There could very well come a time when the category "concept" is no longer an effective or meaningful one for the psychologist. How-

[10] Jerome Bruner. *Toward a Theory of Instruction*. Cambridge, Massachusetts: The Belknap Press of Harvard University Press, 1966. pp. 73-101.

[11] D. E. Berlyne. *Structure and Direction in Thinking*. New York: John Wiley & Sons, Inc., 1965. pp. xi-378.

[12] Sergei Eisenstein. *Film Form and The Film Sense*. New York: The World Publishing Company, 1957. (Originally published by Harcourt, Brace & World, Inc.: *Film Form*, 1949; *The Film Sense*, 1947.)

[13] Jerome Bruner *et al. Studies in Cognitive Growth*. New York: John Wiley & Sons, Inc., 1966.

ever, through technology, cognitive theory might well be embodied in the educational environments that we fabricate for students.

By considering psychological theories—whether learning theory, motivational theory, or cognitive theory—not as the psychologist does, i.e., as valid ways of explaining hidden processes within students, but as very powerful tools for constructing educational environments, we can return to the primary foci disclosed by the great revolutionary theories. Man is a hearkening-speaking being-in-the-world. Our task as curriculum people is to fabricate that educational environment which calls forth from the student authentic, poetic speech.

Our task is world building. Within that world, as teachers, we should be free to engage in conversation with the student about that which is called forth in him by the world we have created. If we see psychological theories as world-building tools rather than tools for understanding students, then we, too, are freed to live as hearkening-speaking beings in the world we build—not as people controllers or manipulators.

Shaping Curriculum: Blueprint for a New School

WILLIAM M. ALEXANDER[1]

WE HAVE had so much curriculum shaping and so many different but incomplete shapes foretold in the 1960's and reviewed recently that I would really hesitate to propose another one. Instead I would like to interpret a direction in which I perceive our moving, and describe its possible implications for the new schools of the future. This direction is an increasing focus on the individual's own curriculum.

There is no blueprint to exhibit—perhaps because many of us resist the idea of blueprints to whatever extent these assume standards and uniformity. We have too long been handicapped in serving individuals by uniform educational shapes and standards, and I interpret our hopes for the future to encompass many curriculum shapes, not just one.

Focus on the Individual's Own Curriculum

In my own teaching I have often stressed the difference between what I have called the "curriculum planned" and the "curriculum had." The former consists of all the learning opportunities the school provides its population, the latter the particular opportunities actually selected by

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each individual. The curriculum planners typically confine their attention to the "curriculum planned," whereas the teacher in the classroom works to convert this plan to the "curriculum had" by the individual learners he teaches. Actually there are probably too many situations in which only the learner himself is very concerned about the curriculum had.

The most encouraging and, to me, the clearest direction of current developments in education is the widening concern for the curriculum had—that is, for matching curriculum opportunities with the individual learners involved. The best statement I have seen of this direction comes from the fine pen of Fred T. Wilhelms. He wrote that:

> For ourselves, if we had to pick out one trend underlying a great many of the developments now occurring in secondary education, it would be the drive to reach the individual student and help him develop.

Then he cited various developments and concluded:

> One could easily cite other developments. Taken one by one, they look like more administrative adjustments. Taken altogether, they add up to a quiet revolution with the individual learner as the heart of the effort. It is a revolution we must understand if we are to guide it.[2]

We can only hope that this revolution is more than a swing of the pendulum, and represents a grander commitment than some other so-called educational revolutions. We recall that the related child-centered school of a generation ago was discredited. But was this the real genesis of today's focus on the individual?

The certainties of ever-larger numbers to educate and the realities of finance and personnel make one gasp at the implications of this focus. Yet surely a nation that hopes to land men on the moon can also hope to provide each individual here on earth the quality of schooling he needs and that our social ideals dictate he should have.

There are some "if's," of course, and we must deal with them. The school of the future will really focus on the individual *if:*

1. We continue to give priority to human problems and potentials rather than to false economy and fallacious norms in education;

2. We encourage efforts to study and plan the total curriculum rather than only bits and blocks of it;

3. We increase the support of education sufficiently to close the presently widening gap between our best and our poorest schools;

4. We admit and overcome the fallacies underlying a considerable amount

[2] Fred T. Wilhelms. "Helping Teachers in the Art of Teaching." *NASSP Spotlight* 74:4; September-October, 1966.

of past and present educational practices which are more appropriate to robots than human beings;

5. We find more effective ways of involving the varied interests which affect education; and

6. We realize that individualization does not mean isolation—that we must retain the aim of socialization even as we individualize.

There are still other "if's," of course, but just this list should be reminder enough that a Utopian school will not be achieved easily. The challenge of the future lies in resolving these "if's"—and in discovering the combinations of program, personnel, and process which will indeed bring about the optimum development of each learner. And so I turn to some possibilities of focusing these three elements on the individual.

The School Program of the Future

In the past, learning opportunities have been persistently grouped as "curricular" and "extracurricular," despite our broad definitions of curriculum. Furthermore, the curricular opportunities have almost universally been described within subject fields. Recent curriculum developments have generally accentuated the subject organization of the curriculum and tended to move schools even further away from core curriculum and interdisciplinary approaches. At the same time, however, many factors have caused a somewhat separate but increasing emphasis in the total school program on the personal development of the individual learner and on his skills and interests in continued learning.

I would propose then that we might use a simple scheme of classification of learning opportunities that would recognize these three major purposes and corresponding interrelated categories of the school program:

1. The personal development of the individual
2. The continued learning of the individual
3. Organized knowledge and the individual.

Such a classification might be a basis for program planning and evaluation that would give clearer attention to phases of the school program other than the study of the school subjects, while still recognizing that the three phases are clearly interrelated with many overlapping opportunities provided.

If such a classification were used, the school's planning group would develop a curriculum plan which anticipated a great variety of learning opportunities in each category. The personal development phase of the

program would encompass study and counseling of the individual, exploratory and enrichment experiences in a wide range of human activities, the total program of somewhat individualized health and physical education, and the various school services which involve the learner's home and family. The continued learning phase would include the diagnosis of learning skills, the individualized programs of instruction in critical skills, the learning experiences of an independent study nature which cut across subject lines and may utilize resources outside the school, and the investigation of opportunities for continued learning in vocations and post-high school educational programs. The organized knowledge phase of the curriculum would continue to include the major fields of the sciences and mathematics, language and literature, social sciences and the humanities, and the vocational areas, and such new organizations of knowledge as may be developed.

Although such a classification may be primarily a check on the scope of the school program, it could also have considerable bearing on the organization of instruction. For example, it may be that organized group instruction as we now know it would continue only in the knowledge phase of the curriculum. And even here different bases of grouping from those now employed might well be used. As alternative sequences of content become available, learners could be grouped in terms of what is known about their ability to deal with the various sequences. Undoubtedly group sizes might vary widely, both with respect to the maturity of the learners, the nature of group presentations, and the amount of independent study to be utilized. For example, several groupings, in addition to independent study and individualized instruction, may well become more common at most levels than the still prevalent standard classes of 30 or so. I foresee more use of the following:

1. Large groups of from 25 to several hundred for initial presentations of a new concept or organizing center within the field

2. Discussion groups of 15 or so for considering questions on a presentation, issues in a field, clarification of difficult concepts

3. Seminar groups of 8 to 15 for planning and reporting individual investigations

4. Laboratory groups of 2 to 7 for working together on a common problem in any field.

But the most perplexing problem of the school program of the future will remain that of the selection of content in the organized knowledge phase of the program. The availability of an increasing number of new programs in most fields, and the certainty of continuing change in the

knowledge that may be included, raise real questions about heavy reliance on curriculum outlines and units of work prepared externally to the teaching situation. These materials freeze quickly. Better than a periodic revision of the curriculum guides and adoption of new textbooks and other materials would seem to be some agreed-upon broad design of overarching guidelines to selection with provisions for the continuing planning of the teachers concerned as they select appropriate organizing centers for their own learners. Of course, the teachers must be helped by a continuing input of new content and new organizations of content.

Hopefully, the curriculum projects will continue to draft materials which are made readily available to local faculties and from which the faculty members concerned can select alternative blocks and sequences of content. The selection needs to be from a spectrum of content, not just from alternate leads to the same content. Some persons see these materials embodied in so-called "teacher-proof" instructional programs which can be hooked into the right machines and individually learned, but one wonders if this arrangement might result in as sterile instruction as that which typically accompanies the wholesale use of workbooks. Should not a team of well-qualified teachers knowledgeable about the field and about their students usually be able to do a better job of setting up learning opportunities than some external group of programmers?

This question in no way ignores the happier possibility that the well-informed teacher, aided and abetted by the appropriate technologists and hardware, may do a better job than could be done by either alone. Neither does it ignore the considerable probability that most skills of learning may increasingly be taught by programmed instruction on an individualized basis. Yet I foresee no successful development in the future that will relieve the teacher of his awesome responsibility as the most critical factor in curriculum development for and instruction of the individual learner.

One further guideline seems to be definitely emerging for the school program of the future: it will be one of continuous progress for each individual. Although age and years in school will inevitably continue to affect the individual's classification, he will be a member of more than one group in school and he will not be arbitrarily promoted, retarded or tracked. Decisions about his individual program and his movement from one instructional group to another will be made by the school personnel who know him best on the basis of the most complete information available about his learning status and needs.

The Role of School Personnel

Although the teacher's importance in an educational program focused on the individual will in no way diminish, he will inevitably become more of a specialist in the school of the future. John I. Goodlad's recent prediction that "Tomorrow's teachers will be educational diagnosticians prescribing tailor-made programs from a well-stocked pharmacy of tested alternatives"[3] does not seem too farfetched, although one would hope and expect the prescription to be deeply personalized rather than mechanically compounded.

The three-way classification of the school program already suggested provides one basis for developing a plan of staff assignment. One group of specialists might be responsible for planning and directing much of the personal development phase of the program: guidance counselors, health and physical education personnel, directors of exploratory programs in the middle school years, and the specialists who work with families and social agencies. These specialists would also serve as resource persons for planning with teachers working in the other phases of the program. Another group of specialists would work with the continued learning aspect of the program: reading teachers, librarians, learning technology specialists, coordinators of independent study, vocational and college counselors. The third group of personnel would work in the organized knowledge phase of the program, and would have specialization in one or more subject fields, depending on their level of teaching.

Some, perhaps most, staff members would work in more than one phase of the curriculum. Teachers of younger children might well work in all three of these phases, inextricably related as they are in the early years of school.

Focus on the individual learner will require a much higher degree of teamwork in the school of the future than is presently common. In the early school years, the team responsible for planning, teaching, and evaluating the school program should probably consist of generalists plus a limited number of personnel working in such specialized aspects of the personal development program as health and physical education and family counseling. The classroom teachers may well be organized further for team planning and teaching of the learning skills and knowledge components of the curriculum. It is assumed, however, that each learner will work very closely with one teacher in particular, however much specific teaching responsibilities may be shared.

[3] John I. Goodlad. *School, Curriculum, and the Individual.* Waltham, Massachusetts: Blaisdell Publishing Company, 1966. p. 219.

In the middle school years, some specialization may well exist in each of the three phases of the school program. In these years responsibilities for the exploratory experiences in studios, shops, laboratories, and elsewhere require specialized resource personnel, as do the responsibilities for expanded use of technical learning aids and for directing independent studies that take students out of the usual classroom and school setting. The teachers responsible for instruction in the organized knowledge phase of the curriculum may very well be organized into teaching and planning teams representing specialization in language arts, mathematics, science, and social studies. These teams will need much counsel and assistance from the staff members working in the other two phases of the program.

The staff of the upper or high school years will also represent the three phases of the school program, with greater need here for specialization in counseling of high school youth, for vocational and college choices and preparation, and for subject specialization of the teaching staff. Team teaching and planning in these years may be expected to be within the teaching fields and to provide for better utilization of competences in various aspects of each field.

The role of administrative and supervisory personnel seems less clear. Certainly each school will need an educational leader able to interpret school programs and needs to the community and to lead his staff in educational planning and policy making. The school will also need services that may or may not be shared with other schools, including: leadership in articulation with other school units, test development and utilization, provision and use of educational technology, research on the school program, evaluation of staff members, in-service education of staff, and other staff development services. The critical need for leadership in curriculum development will probably be met through various combinations of arrangement: system-wide curriculum resource specialists, team leaders who provide liaison with these specialists, and individual school curriculum coordinators. To propose exact plans of staff arrangements for these various purposes seems completely unrealistic.

Educational Process and the Individual

Two guidelines regarding the educational process in relation to the individual should be emphasized in addition to what has already been said about process and organization. First of all, the school of the future cannot serve the individual fully and still maintain such a separate and distinct status as do most school units today, especially

those in urban centers. A school that follows fully a philosophy of continuous progress for each of its individual learners might ideally be a self-contained, complete school unit serving each child from school entry to school termination. But our ladder of elementary, junior high, and senior high schools is almost universal, and we really would not seek a reversal to the traditional 12-grade school of the small town.

Better, could we move to a plan of flexibility, corresponding to levels of human development, which therefore assumes a lower, a middle, and an upper level of the program? Such a plan would facilitate planning between these levels, and encourage the ready movement of individual learners and staff members from one level to another. The intent would be to plan one program of education for the children and youth in each vertical grouping rather than to have the three separate and distinct systems of education, by levels, which still characterize many of our large school districts. Then, as individual children in the lower school could profit by movement into the middle school for a part of their time, or for the entire program, such arrangements should be made at any time, and similarly for movement from middle to upper school and *vice versa*. Furthermore, personnel might be shared vertically rather than horizontally as at present. Indeed articulation and continuity in education might be helped by deliberate effort to share staff members and even to have teachers at times follow their children from one school level to another.

The second guideline regarding process has to do with an increase in independent study throughout the school program and especially in the upper unit. My colleagues and I were disappointed to learn this past year in a Cooperative Research project we conducted that only a very small fraction of the secondary schools of the nation were using independent study plans of a systematic type. We were delighted, however, at the quality of some of the programs we visited, and very much pleased that the personnel of schools employing these plans were almost unanimous in their support of independent study and in desiring its expansion. We defined independent study as:

> . . . learning activity largely motivated by the learner's own aims to learn and largely rewarded in terms of its intrinsic values. Such activity as carried on under the auspices of secondary schools is somewhat independent of the class or other group organization dominant in past and present secondary school instructional practices, and it utilizes the services of teachers and other professional personnel primarily as resources for the learner.[4]

[4] William M. Alexander, Vynce A. Hines, and associates. *Independent Study in Secondary Schools*. New York: Holt, Rinehart & Winston, Inc., 1967. p. 12.

To turn to independent study as *the* approach to education might be as fallacious as previous reliance on uniform textbooks, assignments, and homework. But properly conceived independent study appears to be a very promising way of individualizing a substantial portion of the learner's own curriculum. It is an approach to helping him become the self-motivating, self-propelling, and self-realizing learner we seek. Already the use of independent study is found somewhere in every area of the curriculum. In our study we identified five patterns, all of which may well be commonly used in schools of the future:

1. *Independent Study Privileges or Option:* This is a pattern in which independent study is optional, although encouraged and facilitated by scheduled time, for a large number of students, even the entire student population.

2. *Individually Programmed Independent Study:* In this pattern each member of some designated group is guided individually (but *not tutored* individually, as in tutorial instruction for achieving some norm) in planning and conducting a program of independent study related to his particular learning needs. This pattern sometimes uses programmed materials.

3. *Job-oriented Independent Study:* This pattern focuses independent study, as we have defined it, on preparation for a particular job, vocation, or career. This preparation may range from a semiskilled occupation to graduate level research in an academic discipline.

4. *Seminars Based on Independent Study:* In this pattern the seminar is more than a class by this name. It is a situation wherein students engaged in independent study can come together to share their reading, projects, or research findings.

5. *"Quest-type" Programs for Development of Special Aptitudes:* This pattern includes a variety of independent study activities for students who work almost completely on their own in the exploration, extension, and refinement of special talents, aptitudes, and interests not necessarily related to career choices.[5]

Undoubtedly much more extensive use of such patterns will be made in the schools of the future, probably at all levels with greater use as the individual matures, and should in fact become more independent.

In closing, I return to the distinction between the curriculum planned for the school and curriculum actually had by the individual. Obviously an increasing focus on the individual's own curriculum must result in his increasing freedom to choose his own learning opportunities. Although his degree of real involvement is always the learner's own choice, most curriculum planning of the past has assumed that external motivations and pressures would force a single choice by the teacher on all indi-

viduals in the group. The school of the future can provide a much more complete spectrum of learning opportunities and a much better diagnosis of learners' needs and motivations. With these greater assets we may be able to match learners and opportunities so well as to achieve in practice a wonderful bit of Goethe's philosophy: "If you treat an individual as he is, he will stay as he is; if you treat him as he ought to be and could be, he will become what he ought to be and could be."

[5] *Ibid.*, pp. 12-13.

Part II

Forces Influencing the Subject Fields

Changing Conceptions of Artistic Learning[1]

ELLIOT W. EISNER[2]

THE practice, content, and goals of education in America have never been insulated from the social and intellectual currents of their era. Who should be educated, for what ends, and through what means are questions that are perennially alive and will be as long as social and intellectual ferment continue on the American scene.

It is understandable, therefore, that just as education at large has changed, so, too, has the field of art education. It is these changes—in the practice, content, and goals of art education—that I would like to treat here, especially as they have emanated from changing conceptions of artistic learning.

There was a time in education when the child was viewed as a miniature adult who, in order to save his soul, needed to learn to read the scriptures and to heed his elders. The child was instructed and trained to obey and to take his place in a predictable social system, one that had no expectation of drastic change. The laws passed in the Massachusetts Bay Colony in 1642 and 1647 specified the reasons for and the

[1] Reprinted by permission from *Elementary School Journal*, Vol. 68, No. 1; October 1967.

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methods of education. Two centuries later the child still was to learn the scriptures, especially in some communities, but his education was becoming liberalized even if his brain was viewed as a collection of faculties—intellectual muscles that could be strengthened through mental discipline. Latin, Rhetoric, Mathematics, and Greek were considered appropriate for exercising these "muscles," and art, when it did enter the curriculum of the school, was seen not as a mental discipline but as a cultural nicety or a means of vocational training.

With the birth of the child study movement in the late 1880's, the formulation of child labor laws, the growth of labor unions, and the rise of the community settlement house came the growth of the progressive liberal tradition in education. Through his work, John Dewey provided a cohesive and rational theory through which in a changing society educators and liberals alike could find allegiance. Combined with the growing importance of Freud, who by 1909 had visited Clark University to speak to students and faculty about the unconscious, the ego, and the superego, the new view of the child and how he develops began to muster strength, at least among those theoretically interested.

This new view emphasized the fact that the child's cognitive development differed from that of an adult. The child has, as it were, "a mind of his own." He comes to school with needs to be met, with fears and feelings to be respected, and with a set of potentialities that needs to unfold and develop. Dewey had emphasized the difference between the logical and the psychological in building curricula; G. Stanley Hall, decades earlier, had provided the maxim, "Ontogeny recapitulates phylogeny"; Freud had reminded sophisticated educators and parents of the quiet, hidden life of the child's mind. But perhaps most important, Edward L. Thorndike's influential work on learning wrecked the understructure of faculty psychology by demonstrating how little students could transfer learning even with the faculties supposedly strengthened through the mental discipline of studying the "hard subjects." There emerged, therefore, during the first half of the twentieth century a view of the child and of learning that differed radically from that held earlier. The child was not merely a machine, or a piece of malleable matter to be molded, but a living, breathing organism. And the shift in metaphor from "machine" to "organism" reflected the direction of the change in view. This view of the child as a growing, unfolding organism that develops primarily from the inside out had its effect on practices in education generally and in art education specifically.

Art education, too, during the 'twenties, 'thirties, and 'forties changed. Since the child was viewed as an unfolding organism, art was viewed

as an ideal means through which this unfolding could take place. If previous school practice stifled the imaginative and creative thought processes of the child, art could nurture them. If the previous emphasis in education was on meaningless verbal learning, art was considered an excellent antidote, for it provided for nonverbal expression. If earlier school practices placed the student in a passive classroom role, art "activities," as they were called, could get children engaged and moving.

Changes in Views of Art Education

When one combines these views with the growing importance in America of modern art, the permissive, almost laissez-faire, view of children's learning in art becomes even more understandable. The dominant view held by art educators during this period regarding the child, learning, and content was that art education was a process-oriented expressive activity which unlocked creative capacities through nonintervention by adults. The delicate development of the young mind was considered paramount, not to be interfered with by instruction.

Progress in art was a matter of maturation in which the concept of readiness held a key position. This indeed was a very different view from that held by Walter Smith[3] 70 years earlier.

By the late 'forties, however, the laissez-faire view of the child's development in art that had held such an important place in the literature during the preceding two decades had begun to change in very significant ways.

Around the early 'fifties several things occurred in the country at large, in education and in psychology. The Progressive Education Association, which had been so strong in the late 'thirties and early 'forties, began in the late 'forties to decline; by the middle 'fifties as a formal organization it was dead. With its death, critics of American education became more vocal and with the rise of Sputnik in 1957 and the birth of the National Science Foundation significant modifications in school curricula began. The country appeared ready to recoup from what it believed was an overemphasis on "soft" schooling. Psychologists who previously had neglected a study of the higher mental processes and who had been employing S-R models in their research began to take

[3] Walter Smith was an English art teacher who, in 1870, was invited by the State of Massachusetts to direct art for the state and to establish state normal schools for the training of art teachers. For a discussion of his work and a review of his publications, see: Elliot W. Eisner and David W. Ecker, editors. *Readings in Art Education*. Waltham, Massachusetts: Blaisdell Publishing Company, 1966.

interest in cognition, the growth of thought in children, and in creativity. Piaget, a Swiss psychologist and epistemologist who had long been concerned with the child's conception of reality, became important to read although his work had been available since the 'twenties. And students of perception, such as Jerome Bruner, became interested in the study of the "course of cognitive growth." J. P. Guilford, during the early 'fifties, made several important contributions to the measurement of creativity. In recent years more practically oriented investigators such as Hilda Taba and Richard Suchman have attempted to affect cognitive processes through instruction.

Perhaps the most significant change in thinking about thinking is the discovery of the extent to which this process can be modified through experience. The most exciting contemporary view of the cognitive processes, at least to me, is that view which emphasizes not the passive role of the teacher in relation to cognitive development, but the active role. It is this view, a view which argues the importance of the consequences of instruction, that I believe poses both problems and opportunities for art educators.

Thinking—A Consequence of Learning

Jerome Bruner, whose book, *The Process of Education*,[4] has generated so much excitement in education, has emphasized that thinking is not merely a consequence of natural unfolding but also a consequence of learning, something supposedly that schools have some responsibility for. For Bruner, the child is born into and grows through a culture, a culture which provides him with the tools of thought. Some of these cultures are rich in tools, others limited. But for Bruner the extent of an individual's ability to think is profoundly shaped by the cognitive tools available. This is not to say that the child himself does not set some limits to what is possible.

There is for Bruner, Piaget, Gesell, Havighurst, and other students of human development, an array of stages or modes of thought that characterize different age levels. Bruner calls the first and probably the most primitive of these the *enactive mode* of representation, the second mode is called the *iconic mode* of representation, and the third, and for Bruner the most flexible, the *symbolic mode* of representation.[5]

[4] Jerome Bruner. *The Process of Education*. Cambridge, Massachusetts: Harvard University Press, 1961.

[5] Jerome Bruner. *Toward A Theory of Instruction*. Cambridge, Massachusetts: Belknap Press, 1966.

It is claimed that cognition requires, at least in part, that the child find a way to think through problems internally, to represent the external world to himself, "on the inside."

The three modes of representation, the enactive, the iconic, and the symbolic, are vehicles for such representation. They are not stages in the sense that they are passed through as, for example, is true of adolescence, but are used throughout life once they have emerged. Each of these cognitive modes represents reality and allows the individual to cope with reality more adequately, but each for its development requires the acquisition of mental tools or technologies. These technologies of mind are found in the cultural achievements of man—in scientific theory, in literature, and in the arts, for example. A child growing up in a home or school where these technologies of mind are available will be more likely to be able to acquire them than one who has to build them from scratch by himself. A completely culturally deprived individual would not be human.

The great theories, the profound works of literature and art, the persuasive and coherent views of history and philosophy, the analytic modes of logic and mathematics are gifts of men who have lived to those who came after.

They are conceptualizations of reality and organizations of form that enable us to perceive more clearly and to predict and control more adequately. These technologies of mind, perhaps the most precious gift beyond life itself, can be made available to the growing child. And it is here in the area of curriculum and instruction that the changing conceptions of learning might bear artistic fruit. Thus far I have identified some of the more important changes in the conception of children's thought processes. I have attempted to contrast the older, more passive view of child growth and development with a newer view, one more dynamic and intensive in character. Further, I have identified two sets of concepts: that of modes of thought as they develop in the child and that of the tools or technologies of mind that are necessary for thinking.

I would like to conclude by attempting to tease out the meanings that these concepts might have for the teaching of art in public schools.

Facilitating Artistic Learning

Perhaps the most significant implication of these concepts for art education is that cognitive growth in art is not an automatic consequence of maturation. Maturation itself means not only change but also develop-

ment and growth. And growth is dependent upon nurture from the environment. Cognitive nurture as it might contribute toward the development of artistic intelligence is facilitated by the tools the child learns to use in dealing with art. These tools can be differentiated in three areas.

In the enactive mode, the child needs to develop skill in the handling and control of media. He needs to develop a sureness, an educated wrist, as one writer put it, by which to direct the qualities that flow from his hand. In the iconic mode, the child needs to develop the ability to conceive, to visualize and to imagine. But these latter abilities, even if well-developed, will remain internal unless the child has achieved sufficient control of the media to give them material and public form. The point here is that such abilities need not be left to chance or to the child himself to develop. Instruction in the development of control, activities engendering image formation and its formulation in and through media are necessary for cognitive development in art. In short, perhaps the most significant message that research on the cognitive processes has to provide the teacher of art is one of urging the teacher to use himself and the curriculum in an active way to facilitate and not merely wait for learning, even in the very young child.

Another implication of research for facilitating artistic learning deals with the symbolic mode: the uses of language as a cognitive tool. Language has been viewed by most people as a means of communication, a vehicle for sharing meanings. It was George Herbert Mead, at the turn of the century, and linguists such as Sapir and Whorf, who pointed out that language not only serves as a means of communication but also is a grid or screen through which we perceive reality. Language is, in part, a window through which we see the world. And because there are different languages—the languages of poetry, biology, visual art, dance, and mathematics, for example—there are different views that each yield. In the teaching of art it appears defensible and aesthetically relevant to enable the student to acquire linguistic tools through which to view the work. Terms such as value, intensity, composition, contour, volume, foreground, and the like stand for qualities to be perceived. These terms are in no way adequate for describing the qualities found in art, but they can serve as reminders of what to look for.[6]

Linguistic tools useful for the construction and perception of works of art go beyond the concepts just described; linguistic tools encompass not only concepts but also generalizations about the very nature of art.

[6] For a discussion on the relation of discursive and artistic knowing, see: Elliot W. Eisner. "Knowledge, Knowing and the Visual Arts." *Harvard Educational Review* 33 (2): 208-18; Spring 1963.

It is here that theories of art perform a most important function. Theories of art are important for a student to understand not because they serve to define the nature of art in any complete and final way but because, as Morris Weitz has pointed out, the theorists of art have been our best teachers.[7]

Significance in Art

Theories of art are important because they call to our attention what is significant about art—for Dewey the quality of the experience undergone, for Read the mathematic organization of the work as a whole, for Tolstoy the communication of human emotion, for Morris the expression of human valuation. Each of the great theories that has been created provides a different view of the work of art, each provides a little window through which to see the work a bit more clearly.

While there is a relationship among the modes of thought I have described, it should not be supposed that development in one mode automatically results in development in another. One of the great errors of schools before the turn of the century—and even afterwards—was the assumption that if the student understood the words, he would be able to perform the act. All too often the consequence of such instruction was meaningless verbal learning. Art education has not made this mistake, but it has, I believe, erred in the opposite direction. Art educators have been so concerned with engaging the student, in enabling him to do, that concern with helping him acquire linguistic tools with which to think about art have been neglected. The result is that even the well-schooled are left speechless before a work of art, forced to stand in mute silence, or to grunt approval or disapproval to the limited qualities they are able to perceive.

In this paper I have attempted to identify some of the major conceptions of the child and of how he learns that have prevailed through the years. These changes have been dramatic. And theory, notwithstanding the complaint by some of its irrelevance to practice, has affected how we relate to the child, the educational ends we value and the pedagogical means we employ.

This era especially has seen a vast number of significant changes in our view of the child. The soft-romantic, liberal, and humane view which replaced the mechanistic view of the nineteenth century is itself

[7] Morris Weitz. "The Nature of Art." In: *Readings in Art Education*. Elliot W. Eisner and David W. Ecker, editors. New York: Blaisdell Publishing Company, 1966.

being reorganized and modified. Appreciation of the power of the environment and the importance of the teacher and instruction has begun to come to the fore. Recognition of different modes of thought and hence of their unique contribution to the child's conception of reality is beginning to be discussed by those informed. The role of the tools and technologies of mind that the growing human employs to cope with reality is being identified and formulated.

If these new conceptions have merit, they have implications for the teaching of art. The teacher of art *does* have a responsibility for instruction in art and is not to be merely a stimulator, motivator, and dispenser of media. The teacher generally knows more about art than the child and because of this the child need not have to rediscover for himself the artistic wheel.

Further, the development of artistic growth in the human is not limited to the making of art but to an awareness of the qualities of great works of art, to an understanding of the criteria that can be employed to appraise these works, and to respect for and appreciation of the culture out of which the work has emerged. I have called these areas the productive, the critical, and the historical aspects of the art curriculum.[8] Each area has a unique contribution to make to the child's artistic development. Given the new view of learning and the new view of the role of the teacher and the function of instruction, it appears plain that each of us has more than enough work cut out for us. Teaching and learning in art is indeed difficult—but whoever said it was easy?

[8] Elliot W. Eisner. "Arts Curricula for the Gifted." *Teachers College Record* 67 (7): 492-500; April 1966.

New Curriculum Developments in Music Education

BENNETT REIMER [1]

THE field of music education, when viewed in the context of the total educational enterprise, is in many ways very active, highly articulate, and extremely self-conscious. Its national organization, the Music Educators National Conference (MENC), has a total membership of over 54,000, with 18,000 student members in over 500 colleges and universities around the country. This is the largest membership of any subject matter organization in American education. Music education is, by any standard, a very highly organized field, with a complex system of national, regional, state, and district groups, each with its own elaborate structure and each interrelated with the others in a web of common concerns and interests.

The teaching of music in American schools consists of two kinds of activities: (a) performance groups—bands, orchestras, choruses, and a great variety of smaller ensembles; and (b) classroom teaching of music, commonly called "general music." Performance activities are well-defined and highly developed. Instrumental instruction[2] is offered by over

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[2] All figures given here are from Research Monograph 1963-M3. "Music and Art in the Public Schools." Washington, D. C.: Research Division, National Education Association.

70 percent of elementary schools, and usually begins in grade 4 or 5. About 94 percent of junior high schools and 86.5 percent of senior high schools have bands, and orchestras exist in a substantial and constantly growing number of elementary and secondary schools.

Choral activities are almost as widespread as instrumental activities. Choral instruction often begins in the upper elementary grades, and almost 80 percent of junior and senior high schools have choral programs.

General music is taught in over 97 percent of elementary schools, 67 percent of the schools having a definite time allotment for this subject. About 80 percent of the teaching of elementary general music is done by classroom teachers, either alone or with the help of music specialists who sometimes act as consultants and sometimes teach as well as supervise. In about 20 percent of elementary schools, music specialists teach all the music offered. About 84 percent of junior high schools offer general music and practically all of this teaching is done by music specialists. At the high school level only about 28 percent of schools offer general music classes.

The number of students enrolled in any kind of music instruction falls sharply from the almost total involvement in elementary schools to about half of junior high school students and less than one-quarter of senior high school students. Since instruction at the elementary level is largely provided by nonspecialists, and since instrumental and choral activities account for most of the enrollment at the secondary level, it is apparent that many children graduate from public school with little, if any, expert, formal, classroom instruction in the art of music. And music is by far the most widely taught of the arts (with the exception of literature as part of English instruction). Instruction in the visual arts reaches even fewer students than does music, and the arts of drama, dance, and architecture are practically nonexistent as actual curriculum areas. Music education thus assumes a major responsibility for providing youth with whatever acquaintance with the fine arts they are likely to get through public education.

Against this background of less than total influence on public school students, and with the sharply increased concern about and interest in the arts by a society trying to add a measure of aesthetic richness to the quality of its existence, it becomes a matter of great importance that every bit of instruction in music be as effective as it can be made to be. A thoughtful, research-based, highly focused curriculum would seem to be a necessity if music education is to make the kind of contribution to society which society needs and wants.

Efforts in Music Education

That such a curriculum does not now exist is quite clear. Yet it is also clear that practically every segment of the music education profession is ready and even anxious to consider ways to improve its curriculum. This attitude received tangible embodiment in the biennial national convention of the MENC, held in Kansas City in March of 1966. The theme of this convention was "The Changing Curriculum in Music Education." MENC conventions have a certain genius for focusing the attention of the profession on the most timely, most important issue of the day. The 1966 convention was no exception. It served notice that music education was ready to enter the mainstream of curriculum reform in American education.

At the moment, curriculum efforts in music education exist at three levels. First, there is the generalized ferment in the profession as a whole, resulting in scores of articles in national and state magazines which discuss the need for curriculum changes and which offer various suggestions as to what the changes should be. Music educators are very much aware that far-reaching curriculum developments are taking place all around them, and they are anxious and uneasy about the status of music curricula. So the debate about "what to do" has become vigorous and widespread.

At the second level are actual curriculum changes made by individual teachers, individual schools, and, in some cases, by individual school systems. There are hundreds—perhaps thousands—of such "new curricula," each attempting to improve a particular program by trying new content, new methods, new teaching devices, new modes of organization. The range in quality of these efforts is very wide. At one extreme are programs based on little else than a "new wrinkle." At the other extreme are thoughtful approaches which deserve the attention of the entire profession. These tend to gain some visibility through descriptions in the various music education journals.

A study carried out under the direction of Ronald Thomas at Manhattanville College of Purchase, New York, sponsored by the United States Office of Education, identifies and describes 15 innovative music programs in the United States and lists 24 others worthy of special notice.[3] In its search for and study of experimental curricula, this project

[3] "A Study of New Concepts, Procedures, and Achievements in Music Learning as Developed in Selected Music Education Programs." Manhattanville College, Purchase, New York. Ronald B. Thomas, Director.

found that 64 percent of the recommendations made about programs of unusual interest were of high school level courses, with only 18 percent mentioning junior high school and 18 percent mentioning elementary school programs. With almost no exception the curricula chosen for actual study were "one-man" programs reflecting the vision and drive of particular people in particular circumstances.

The project notes a striking emergence of interest in developing understandings of the instrinsic nature and meaning of music as an art. This approach contrasts with the "musicological" or historical approach which utilizes masterpieces conceived as repositories of greatness, and with the "child-centered" approach which is concerned with the use of music for achieving primarily social ends. The widespread interest in involving youngsters in apprehending the components of the actual musical process is, according to the project director, a significant change of educational philosophy in the area of music.

Programs described in this project include several which involve young children in composing music, for voices and for instruments, some of the instruments being invented by the children. One program uses a unique visual device instead of traditional musical notation, so that youngsters can be helped to visualize the relationships among the sounds they are making. Another program uses performing groups entirely as laboratories for exploring the structure of music. One program begins all music study with contemporary experimental music, traditional music being used only when it seems useful to help solve a particular problem of musical experimentation. Still another program approaches all music activities as means for analyzing music, the analyses increasing in complexity according to the age of the children.

While the programs described in the Manhattanville project are of real importance to the music education profession, the limitations of such programs are also real. They are small programs, highly dependent on the particular skills of the teacher running the program, and confined in most cases to a limited set of objectives and a limited application of educational principles. They are, however, an indication of the vigor and dedication which exist in the field of music education, especially in that the number of programs chosen for study in this project represents but a very small fraction of the total effort being made by music teachers to improve their curricula.

At the third level of curriculum effort in music education are long-term research projects, sponsored primarily by the United States Office of Education, which involve major expenditures of time, money, and manpower. These curriculum projects are comparable in importance—although

not in size—to the large projects in other subjects. However, there have been to date only a handful of such projects and there has not been time for them to have had the kind of influence which, hopefully, they will eventually exert.

Sponsored Efforts

In the following description of sponsored curriculum efforts in music education (all sponsored by the United States Office of Education, except as otherwise stated), it will be noticed that practically all attention is focused on ways to improve musical understanding and appreciation rather than musical skills or techniques. If there is any single, fundamental idea underlying curriculum reform efforts in American education it is no doubt that an understanding of the nature and structure of a discipline is what is of real and lasting importance. Music education has come to realize that skills of execution do not ensure musical understanding, and that a technique-oriented curriculum is by its very nature a specialized curriculum relevant to a small minority of students. Just as other subjects have become disenchanted with programs devoted almost entirely to manipulation of materials with little concern about the level of insight into the nature of the subject, so music has become dissatisfied with its traditional emphasis on performance for the sake of performance. Old assumptions about the efficacy of performance in developing musical sensitivity are being seriously questioned, and old attitudes of unconcern about the classroom teaching of music are being reexamined.

This shifting of interest is exemplified in a book published by the MENC in 1963, entitled *Music in General Education*.[4] A major contribution to the field of music education, this volume attempts to stipulate the essential musical skills, understandings, and attitudes which every generally educated person should have, and to show how each area of the music education program can contribute to the development of every child's musical competence. Far from abandoning performance activites, the book insists that performing groups can and must make a contribution to aesthetic understanding. Specific examples of experiences which would lead in this direction are suggested, along with ways to use them both in performance groups and in various kinds of general music classes. While not in itself a curriculum, *Music in General Edu-*

[4] Karl D. Ernst and Charles Gary, editors. *Music in General Education*. Washington, D. C.: Music Educators National Conference, National Education Association, 1963.

cation provides a focus for all music curricula. That this focus is on the task of raising the level of musical sensitivity of every child is entirely characteristic of the posture of music education today.

Elementary and Junior High School Projects

Two research projects of some magnitude have dealt with aspects of the elementary general music curriculum. At the Juilliard School of Music an attempt is being made to collect music of high quality from every historical period which is now unavailable but which is appropriate for the use of children in kindergarten through sixth grade.[5] Present musical material used in elementary schools ranges in quality from the very good to the very poor. There exists a large body of literature which has never been tapped for use with young children. With the assistance of eminent composers, performers, and scholars, the Juilliard project is assembling a collection of excellent music which can enrich the present repertory. This music includes Medieval and Renaissance songs up through commissioned works by contemporary composers. One of the commissioned pieces, for example, is for elementary band with an accompaniment of taped electronic sounds of a highly experimental nature.

With the guidance of several music educators, the materials are being tested for level of complexity and appropriateness in selected school systems across the country. Under the point of view that the quality of the musical experience of children depends in large part on the quality of the music they study, the availability of this new resource should be of real value to the elementary general music curriculum.

The second project at the elementary grade level, directed by Richard Colwell at the University of Illinois,[6] attempted (a) to identify the behaviors which go into perceptive listening to music, (b) to use the theory of expectation promulgated by Leonard B. Meyer in his book *Emotion and Meaning in Music*[7] as a means for structuring listening responses, and (c) to try four different approaches to teaching listening in the fifth grade. Analyses of listening responses made by musical experts and suggested in standard music appreciation texts led to the

[5] "An Enlarged Music Repertory for Kindergarten Through Grade Six." Juilliard School of Music, New York, New York. Arnold Fish, Director.

[6] "Development and Trial in Public Schools of a Three-Year Program in Music Education Based Upon the Theory of Expectation." University of Illinois, Urbana. Richard Colwell, Director.

[7] Leonard B. Meyer. *Emotion and Meaning in Music*. Chicago: University of Chicago Press, 1956.

formulation of a list of elements considered essential for perceptive listening. These include recognizing imitation, rhythmic motives, thematic use of melody, dissonance and consonance, the major forms, etc. Four sets of materials were then prepared, each of which dealt with music from the Classical period. The four approaches were (a) the use of Meyer's theory of expectation with stress on form, (b) general textbook statements with stress on factual knowledge, (c) textbook approach with stress on aural skills, and (d) textbook approach with stress on keyboard experiences. Sixteen fifth-grade classes were presented with these four approaches in various sequences.

Testing of the children revealed that the ordering of the four approaches did not produce an advantage for any particular sequence. The director concludes that no matter which of the approaches was used, successful teaching of listening would require a higher level of musicianship on the part of classroom teachers than they now commonly possess, and music specialists would need concentrated training in methods of teaching listening. Also needed for effective listening approaches in upper elementary grades are highly goal-oriented courses and much better tools of evaluating listening responses than presently exist.

The junior high school general music class is in many ways the keystone of the entire music education program. The majority of junior high schools in the United States offer this class; it is taught by music specialists; and it is the last formal contact with music instruction for most American youngsters. At present, however, only one research project of some magnitude is devoted to junior high school general music. This is the writer's project, which is attempting (a) to redefine the aims of the classroom teaching of music at the junior and senior high school levels, (b) to develop a course outline based on the structure of the art of music, and (c) to focus instruction on improving the ability to have aesthetic experiences of music.[8]

The aesthetic position on which this approach is based is that of "absolute expressionism," which is the dominant aesthetic point of view of our times.[9] The behaviors of musical perception and musical reaction are considered to be the components of musical aesthetic experience. Musical

[8] "Development and Trial in a Junior and Senior High School of a Two-Year Curriculum in General Music." Western Reserve University, Cleveland, Ohio. Bennett Reimer, Director.

[9] For an explanation of this term in the context of other aesthetic positions, cf. *Emotion and Meaning in Music*, *op. cit.*, Chapter 1.

perception is an objective phenomenon which is amenable to verbalization and organization, while musical reaction is a subjective phenomenon incapable of being verbalized or directly manipulated. The course, therefore, attempts to develop the powers of musical perception in a context which encourages creative musical reaction.

The course structure is determined by three questions about the nature and function of music. The first is "What does music do?" Sub-topics are "The role of the composer," "The role of the performer and conductor," and "The role of the listener." The second question is "How does music do what it does?" Sub-topics are "Tone Color," "Rhythm," "Melody," "Harmony," "Texture," and "Form." The final question is "How has music done what it does?" This treats the matter of musical style in chronological sequence from Baroque through Contemporary.

In each topic a combination of three kinds of materials is used: (a) information and ideas, (b) listening, and (c) activities. All are focused on developing a perceptive and sensitive response to the musical content of important compositions. Devices have been constructed which point out the expressive content of pieces of music as they are being heard, and which measure the students' level of perception of expressive musical elements. The course is "spiral" in design, the same major conceptions appearing over and over in more and more sophisticated contexts. The most important conception in the course is that music, along with all the other arts, is a means for helping us to understand and explore human feeling. The entire course is focused on discovering just how music goes about doing this. The basic method used is that of (a) synthesis by experiencing a large gestalt, (b) analysis of the elements in the whole, and (c) resynthesis of the whole at a deeper level of response.

The course was taught in the first semester of 1966-67 by three research assistants in three junior high school classes in the Cleveland area. It was taught in the second semester of 1966-67 by the same people in three senior high schools. Revisions were made as needed. It is hoped that this approach will prove to be more relevant for the junior high school age group than the traditional general music class at this level, which is essentially an elementary general music class carried over into seventh and eighth grades. It is also hoped that the emphasis on musical behaviors will have some influence on the ability of junior high youngsters to respond to musical art works more sensitively and appreciatively. The use of the materials at a higher level of abstraction and sophistication for the high school class is an attempt to achieve the same objective for older teen-agers.

High School Projects

At the high school level two projects, in addition to the writer's, have been undertaken. A course is being developed at Yale University, under the direction of Kenneth Wendrich, which concentrates on a study in depth of a limited number of representative compositions.[10] The course has six units: Music of the Dance, Instrumental Solo, Chamber Music, Symphony, Concerto, and Opera. A total of eight core works are studied through listening, analysis, and discussion, with other works being added as they relate to the core compositions. One of the core compositions, for example, is Stravinsky's *Petrouchka*. The study of this work includes not only how this piece is actually constructed, but also such matters as how a ballet is staged, the folk music background Stravinsky drew upon, etc. Historical and biographical material relating to the compositions is presented in a student manual, and tape-recorded and printed musical examples, along with transparencies, are used by the teacher in the discussion and analysis of the music. A programmed supplement dealing with technical information is a part of each unit.

The actual course content has been supplied by several music theorists and musicologists. A program of testing the material will be carried out in 15 to 20 high schools across the country. Participating teachers from these schools will attend a six-week training session at Yale in the summer previous to the trial teaching year. This preparatory session will include courses in music theory and history in addition to study of the course material. After the trial teaching period the participants will return to Yale for a one-week evaluation session.

This approach is intended to supply high school youngsters with an intimate knowledge of a small number of important works and a familiarity with several others. It is hoped that an understanding will be developed of the elements of musical construction—rhythm, melody, harmony, texture, and tone color—and the use of these elements by composers in various historical periods. Finally, the student should have gained skills in listening, analysis, and the use of musical notation, so that he can approach new musical experiences in a knowledgeable and somewhat sophisticated way.

At the University of Iowa a project[11] under the direction of Neal

[10] "Developing Musical Understanding in Secondary School Students." Yale University, New Haven, Connecticut. Kenneth Wendrich, Director.

[11] "The Development of Content and Materials for a Music Literature Course in the Senior High School." The University of Iowa, Iowa City. Neal E. Glenn, Director.

Glenn assembled and developed curricular materials for a high school music literature course, including audio-visual materials currently available and some specially constructed.

The special material consisted of 165 overhead transparencies and 75 tapes for classroom and listening-laboratory use, as well as programmed materials on music fundamentals. A teacher's guide book contained detailed lesson plans and analyses of the music to be studied.

The course was taught to a class of tenth, eleventh, and twelfth graders, with a battery of pre- and post-tests administered to the experimental class and to a control group selected from the high school's performing organizations. After two semesters of instruction in music literature in the experimental class and normal performance experience by the control group, it was found that only small differences were discernible in general musical achievement, these being in favor of the experimental group. Evaluation of the literature course by outside observers was very positive. Eighty-one percent of parents of students in the class indicated a positive change of attitude toward music by their son or daughter; 19 percent observed no change. The students felt very strongly that the course had been worthwhile, 93 percent stating that they better understood how music "works" as a result of their study. Similar student responses were obtained in a second trial of the course in a different high school.

The high school level projects described here are concerned with the art of music primarily. It must be mentioned that a great many high schools are offering courses which present music in the context of the arts in general. Such courses, often called "Humanities" or "Allied Arts" or "Related Arts," attempt to give students an understanding of the entire artistic enterprise throughout man's history. Many of these courses include philosophy, history, social studies, and other cognitive disciplines along with the arts.

The scope of curriculum development in humanities ranges from the efforts of individual teachers or teams of teachers up through state-level projects which call upon the resources of many people in many related disciplines. There is an almost endless diversity of approaches, not only in actual course content but also in the number and kind of disciplines included in the course. The most common approaches seem to be either (a) historical, which examines the arts and ideas of particular epochs, usually in chronological order; (b) issue-oriented, which focuses study of the arts on broad topics such as "Personal Freedom," "Man's Search for Values," "Man and Nature," etc., or (c) artistic-principle focused, which studies the arts through comparisons of com-

mon aesthetic principles such as "order," "rhythm," "contrast," etc. One also finds every possible combination of these three as well as other approaches using some or none of them.

Difficulties and achievements of humanities courses seem to parallel those of interdisciplinary approaches in other fields. On the one hand are severe problems stemming from a lack of qualified teachers; superficial skimming of subject matter; the forcing of relationships between subjects where relationships do not really exist; an almost total lack of experience in really effective appreciation courses in the single arts upon which combined arts courses could be based; team-teaching attempts by personnel untrained in and unsophisticated about this mode of organization; and a generalized lack of background in aesthetics which could serve as a basis for organizing inter-arts courses on a solid understanding of the nature of art in general and of each art in particular.

On the other hand, achievements of humanities approaches include the offering of a broad view of the arts and their role in human life; the opening of new art opportunities to children limited to one type or none at all; an enrichment of the teacher's own background as he struggles with the problems of placing his own art in larger context; the turning of attention to broad issues and ideas to balance the concern with minutia; a generally high level of enthusiasm for such courses by both teachers and students; and, not of least value, the growth of a body of knowledge about strengths and weaknesses of this approach. There is little doubt that high school humanities courses will increase in popularity in the years ahead. Large research projects which provide guidance in every phase of this approach are very much needed if quality is to keep pace with quantity. A newly funded Aesthetic Education Program, under the direction of Manual Barkan, Professor of Art Education at The Ohio State University, will be a major effort in this area.

Other Projects

Research projects in the area of performance are few in number. A project sponsored by the Oregon Music Education Association will attempt to increase the musical understanding of participants in performing groups by making available detailed analyses of the music being performed.[12] A committee selected compositions which should be basic in the repertoire of the various kinds of performing organizations, and a group of music theory specialists, musicologists, and composers

[12] "Project Analysis." Oregon Music Educators Association. Robert Trotter and John McManus, Directors.

from Oregon colleges and universities are making the analyses of the compositions. These will be distributed to directors of performing groups who can use them as an aid to teaching about the music being performed by their bands, orchestras, and choruses.

At the University of Illinois work is going on under the direction of Paul Rolland to develop a wide range of materials to be used by beginning string players.[13] This research is aimed at upgrading the quality of string performance by concentrated effort on the best possible instruction of elementary-age children.

The concern about the number and quality of string players is also evidenced in the keen interest by string specialists in the methods of the Japanese pedagogue, Shinichi Suzuki. Starting violin instruction with children as early as age three, and using a rote method almost entirely, Suzuki has achieved impressive musical and technical results. Various adaptations of this method are being tried in programs around the United States.

Two other influences from abroad are evident in music education, both focused on developing musical skills and understandings in the elementary grades. The Carl Orff method encourages musical exploration by young children, using a large number of percussion instruments and recorders in addition to the usual dependence on the voice. The methods of Zoltan Kodaly are also focused on musical exploration, with a heavier use of singing activities supplemented by visual aids in the form of charts and hand signals. Both the Orff method and the Kodaly method have been claimed by various music educators to be one of the answers, if not *the* answer, to elementary music instruction in the United States. Other music educators, puzzled by various aspects of these methods, such as their emphasis on the use of the pentatonic scale, are less convinced of their value. It will be interesting to observe the fortunes of these methods in the next several years.

Several projects are constructing programmed materials to be used in various aspects of music instruction. At the University of Kansas a project under the direction of Genevieve Hargiss is developing a self-instructional program in basic music theory for elementary classroom teachers.[14] In Oregon, Victor E. Lund is directing a project[15] evaluating

[13] "Development and Trial of a Two-Year Program of String Instruction." University of Illinois, Urbana. Paul Rolland, Director.

[14] "Self-instructional Materials in Basic Music Theory for Elementary Teachers." University of Kansas, Lawrence. Genevieve Hargiss, Director.

[15] "Evaluation of Electronic Self-instruction on Piano Keyboard." Oregon State System of Higher Education, Monmouth. Victor E. Lund, Director.

an electronic self-instruction program for the piano keyboard. J. Austin Andrews, at Eastern Washington State College, is developing a programmed approach to music theory to supplement high school training in that subject.[16] A programmed device to aid in learning musical skills of performance has been constructed in a project directed by Parker La Bach at Kent State University.[17] Carl Nelson, at the State University College, Cortland, New York, is directing a project measuring the effectiveness of programmed analyses of music.[18] Studies of two methods of self-instructional presentation of elements of music were directed by Charles L. Spohn at The Ohio State University.[19] A combination keyboard and programmed learning approach to skills of music reading in the elementary school is being developed at Western Reserve University under William Mandle's direction.[20] Other studies in the area of programmed instruction in music have been carried on in unsponsored projects, such as those by James C. Carlsen and Walter Ihrke at the University of Connecticut.

A project sponsored by the Ford Foundation is inaugurating five pilot programs which will give college music students depth training in the various musical disciplines with particular emphasis on problems of teaching contemporary music.[21] Each of the five "Institutes for Music in Contemporary Education" will include a regional group of universities, colleges, and public school systems.

This concern for the basic musicianship of potential teachers, especially in relation to their understanding of contemporary music, grew out of a project begun in 1959, also sponsored by the Ford Foundation, which to date has placed over 70 composers in public schools around

[16] "Development and Trial of a Basic Course in Music Theory Using Self-instructional Materials To Supplement Training Received in High School." Eastern Washington State College, Cheney. J. Austin Andrews, Director.

[17] "Pilot Project for Development of a Device To Facilitate Learning of Basic Musical Skills." Kent State University, Kent, Ohio. Parker La Bach, Director.

[18] "The Effectiveness of the Use of Adjunct Programed Analyses of Musical Works on Student's Perception of Form." State University College, Cortland, New York. Carl Nelson, Director.

[19] "A Study To Evaluate Two Methods Using Magnetic Tape Recordings for the Self-instructional Presentation of the Elemental Materials of Music," and "A Comparison Between Different Stimuli Combined with Two Methods for Providing Immediate Knowledge of Results in Learning the Elemental Materials of Music." The Ohio State University, Columbus. Charles L. Spohn, Director.

[20] "Utilizing a Combination Keyboard and Programmed Learning Method for Teaching Basic Music Reading Skills in Upper Elementary Public Schools." Western Reserve University, Cleveland, Ohio. William Dee Mandle, Director.

[21] "Contemporary Music Project." Administered by the Music Educators National Conference, National Education Association, Washington, D. C.

the country as "composers in residence." Bringing contemporary music directly into the schools in the form of real, live composers, and upgrading the education of music teachers in basic musicianship and competence to deal with modern musical techniques, should have significant effects on the status of contemporary music in our society. That serious efforts are being made in this direction, sponsored by one of America's most prestigious foundations, is a hopeful sign for those concerned about the role of today's music in today's world.

Finally, mention should be made of the general status of teacher education in music. Curriculum reform in music education is at too early a stage to have brought about important changes in the education of teachers. The traditional curriculum, which provides programs for instrumental majors and for choral majors, remains the rule. In this curriculum, classroom music teachers receive essentially the same training as directors of performing organizations, with the addition of a methods course or two in general music.

Signs of Change

Now, with the increased interest in the classroom teaching of music, signs of change are beginning to appear, although it perhaps takes a keen eye to recognize them. At the State Teachers College in Kirksville, Missouri, a curriculum is offered in Allied Arts, under the direction of Leon Karel, which prepares teachers to be specialists in high school inter-arts classes. At Western Reserve University, Cleveland, Ohio, a program under the writer's direction prepares general music specialists for both the elementary and secondary school levels. This is in addition to the usual programs for instrumental and choral teachers. Other institutions are showing a good deal of interest in programs of this type. As curriculum work proceeds in the public schools, teacher education curricula in music will no doubt change, as they have begun to change in fields more advanced in curriculum development than music.

The arts have seldom been held in as high regard in America as they are today. The more concerned we become with qualitative aspects of life, in addition to quantitative aspects, the more important the arts become to our society. And as our understanding of art and its values becomes more sophisticated, our expectations of public education in the arts will also become more sophisticated. The appearance of a new periodical, the *Journal of Aesthetic Education*, edited by Ralph Smith at the University of Illinois, indicates that the separate art education fields are beginning to be able to conceive themselves as part of a

larger, more subtle, but ultimately more important endeavor—aesthetic education.

Music education seems to be moving in the direction of aesthetic education. While music education has always thought of itself as being an important field, conditions now seem to be such that its contribution to society can be at a deeper, more meaningful level than it has generally been in the past. To the extent that music education succeeds in its desire significantly to affect the level of aesthetic sensitivity of every child, it will become a more and more central and necessary part of American education.

New Directions in Social Sciences Education

JOHN U. MICHAELIS[1]

AS WE look ahead and plan instruction in history and the social sciences, it is possible to capitalize on several directions that are emerging as new materials become available. These new directions clearly indicate that there is a shift from the descriptive and prescriptive social studies programs of the past to more analytical and systematic programs in history and social sciences. Attention is being given to ways in which instruction can be rooted solidly in the foundations of curriculum planning. Structural components drawn from the disciplines are reflected in statements of objectives, patterns of organization, teaching strategies, and evaluation. The need for teacher education as a means of implementing new programs is being given high priority. The many new directions place new demands on the decision-making process of school personnel.

Curriculum planners should be prepared to participate in the decision-making process as local and state groups capitalize on the best of new developments and devise programs of instruction of high quality. Such participation calls for more than information about new directions. Also needed is an analytical procedure for reviewing new materials, a procedure that will enable curriculum workers to gather

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information that can be used in making assessments of new developments. In short, an analytical and systematic approach to curriculum planning and assessment should characterize our activities in much the same manner that an analytical and systematic approach characterizes new developments in social sciences education.

I propose an approach that is based on a theory of curriculum development that seems to be consistent with dominant viewpoints in many schools as well as in many curriculum development centers. First, attention should be given to such elements as the primary orientation of a program and the disciplinary, social, and psychological foundations. The components should be considered in detail because of their pervasive influence on all phases of instructional planning. Second, attention should be given to various aspects of instructional planning, including objectives, organization, teaching strategies, instructional media, and evaluation. Third, attention should be given to teacher education so that problems of implementation can be met. Finally, an analytical and systematic procedure is needed to guide continuing study of new developments. Let us turn now to a consideration of each of the foregoing.

Primary Orientation

Primary orientation means the degree of emphasis that is given to conceptual approaches to instruction based on material drawn from history and the social sciences as against the degree of emphasis that is given to a direct attack on social issues and problems. The current issue may be expressed as disciplinary approaches *vs.* general education approaches. In a historical sense the educational issues may be viewed in part as schooling for liberal education values *vs.* schooling for utilitarian values. Some individuals view the issue as effective citizenship by means of a grounding in history and the social sciences *vs.* effective citizenship by means of functional studies of social problems and issues.

The primary orientation of most current projects is clearly toward conceptual approaches rather than toward problems approaches. Content, processes of inquiry, and values are drawn from history and the social sciences and organized as units or courses of study. Social issues and problems are included to the extent that they are a part of the material selected from history and the social sciences. In addition, applications to selected problems are made in some project materials.

In one project which focuses on the teaching of public issues, concepts are drawn from relevant disciplines and combined with strategies that can be used analytically to explore value and substantive

aspects of major social issues (14). In another project direct attention is given to the rights and responsibilities of American citizens (18). In the main, however, the emphasis in most projects is on the depth study of units that are rooted in materials drawn from the disciplines. The dominant viewpoint is that the purposes of general education can best be served by conceptual approaches rather than by problems approaches.

Foundations of Curriculum Planning

The foundations of curriculum planning typically include the disciplines from which structural components are drawn, along with the social, psychological, and philosophical foundations. In textbooks on curriculum planning these foundations are usually presented on a par and represented as the base for initial planning. One may get the impression from reading some textbooks that the social, psychological, and philosophical foundations are more basic or fundamental than the disciplines that provide the content and processes of inquiry. A basic issue here is the relative emphasis given to the different foundations. A key problem is to attain a balance in program planning that pays off in the devising of materials that are valid or authentic in a substantive sense, suited to the variegated educational needs and potentialities of students, and related to societal values and changing conditions.

The academic disciplines are clearly the central sources of material for instructional planning in current social studies projects. In addition to history, economics, political science, geography, anthropology, and sociology—the big six in social sciences education—some attention is being given to psychology, jurisprudence, and philosophy. History and economics are being used extensively, closely followed by political science, geography, and (to a lesser degree) anthropology and sociology. Psychology is being given special attention in at least two projects (4, 5), in which conceptual and process aspects of psychological inquiry are considered in some depth. Jurisprudence has been drawn upon in materials dealing with public issues (14), in case studies related to civil liberties (15), and in case studies related to due process of law for use in elementary schools (18). Aspects of philosophy, especially related to logical analysis and the study of values, may be noted in several projects. Special bulletins on values have been prepared by a philosopher in one center (12).

The social, psychological, and philosophical foundations have been given less detailed consideration than the disciplinary foundation. The dominant procedure appears to be to select and organize material from

the disciplines and then to draw whatever is helpful from the other foundations to devise an effective program of instruction. For example, instead of starting with the developmental growth characteristics of children and making decisions about what should or should not be included in a program, many individuals in projects have outlined what should be taught and then proceeded to try out various strategies in order to identify effective ones. The dominant viewpoint on learning is to involve students directly and actively in situations marked by concept development, the use of questions to analyze materials, and the formulation and testing of hypotheses or generalizations. Aspects of social and philosophical foundations may be noted in some project materials in which direct attention is given to societal values, issues, problems, and changing conditions along with logical methods of handling definitions, organizing data for different purposes, raising questions, and using criteria to make judgments.

In short, the disciplines are kept in central focus in all phases of curriculum planning. The other foundations are viewed as having a contributory role in shaping and refining units of instruction that are designed as integral parts of instruction rooted in academic disciplines. What seems to be desired is a program that is balanced in terms of using the most effective means of attaining outcomes closely associated with the primary orientation of new project materials as discussed in the preceding section. A consideration of structural components will help to indicate specific ways in which the disciplines are central in current curriculum planning activities.

Components of Structure

A question that is raised frequently by curriculum specialists is: How is the structure of new social sciences education programs being defined? The answer is varied and requires an examination of the components of structure and examples drawn from current materials.

Structure may be viewed as having three basic components: the substantive or conceptual elements, the process or inquiry elements, and the value or attitude elements. Primary attention is given to the conceptual aspects of structure in most programs, although inquiry and value elements are identified in some programs. These three aspects of structure are joined in most programs as opportunities for experience and are planned and carried out in the classroom. Efforts are made to guide students' learning as they use conceptual tools and techniques of inquiry in a way that typifies the values associated with rational

study of human problems. Examples of the structural elements that are used in project materials follow.

Conceptual Components. The conceptual elements that are used to indicate substantive aspects of structure along with examples are presented below:

Concepts, such as culture, institution, role, social change, power, system

Concept Clusters, such as factors of production: land, labor, capital, entrepreneurship, government

Generalizations, such as "culture is a primary determiner of how man uses his environment"

Themes, such as Nationalism in the Western Tradition, The Growth of Equality in the West

Issues or Problems, such as Fair Competition and Business Monopoly, Problems of American Labor

Questions, such as: Which is more important, a man's private good or the good of the state? What is the source of human rights, according to the Constitution?

Most new programs include combinations of the preceding components even though one may be emphasized more than others. For example, emphasis is given to concepts and concept clusters in economics projects, political science materials, and units rooted in material drawn from anthropology and sociology. At the same time use may be made of themes, analytical questions, generalizations, and issues which involve the use of key concepts selected for emphasis. In historical materials emphasis is given to themes, issues, and questions as events and episodes are portrayed in time/space context. Concepts and values drawn from both the social sciences and humanities may be integrated as interpretations are made of selected events in a given period and place. In geographic materials emphasis is given to concepts and concept clusters that may be used to guide the study of distributions, areal associations and spatial interactions in a space/time context.

In summary, although most of the components of structure noted above may be found in new materials, it is possible to identify what may be called a primary emphasis in the use of one or more elements of structure. Concepts and concept clusters which may be used to guide study that leads to the making of generalizations appear to be dominant in the social sciences, while issues, themes, and questions appear to be dominant in history. A guiding principle appears to be to select and use those conceptual elements of structure that are most productive in studying a given topic. No single monolithic structure, or approach to defining

structure, may be identified as being applicable to most projects. Selected examples follow.

Major Concepts. A set of 34 major concepts for use in social studies curriculum planning has been identified in one project (16). Units of instruction are currently under development on several of the selected concepts which have been drawn from history, geography, political science, economics, sociology, anthropology, and allied disciplines. The concepts are as follows:

Substantive Concepts: Sovereignty of the nation-state in the community of nations; conflict—its origin, expression, and resolution; the industrialization-urbanization syndrome; secularization; compromise and adjustment; comparative advantage; power; morality and choice; scarcity; input and output; saving; the modified market economy; habitat and its significance; culture; institution; social control; social change; interaction

Value Concepts: Dignity of man; empathy; loyalty; government by consent of the governed; freedom and equality

Concepts of Method: Historical method and point of view; the geographical approach; causation, techniques, and aspects of method—observation, classification and measurement; analysis and synthesis; questions and answers; objectivity; skepticism; interpretation; evaluation; evidence.

Concept Clusters. An effective way of spotting units of structure is to check units of study, teaching guides for courses, and materials for students. It is in these materials that one can find the components of structure that are actually being used. For example, the following concept clusters may be noted in current materials:

Major Landforms: plains, hills, plateaus, mountains

Basic Economic Questions: What to produce? How much? How? For whom?

Rights and Responsibilities: liberty under law, freedom of expression, freedom of religion, equal protection of the laws, due process of law

Social Change: invention, diffusion, adoption, adaptation, rejection

Processes of Social Interaction: cooperation, competition, conflict, assimilation, accommodation

Historical Time: periods, eras, epochs, ages; prehistoric, ancient, medieval, modern

Economic Values: security, justice, freedom, stability, growth.

Clusters such as these are used to formulate questions or hypotheses to guide study, gather and organize relevant data, make comparisons, explain human interaction, and draw conclusions. They strike the writer as being illustrative of the functional units of structure that both scholars

and curriculum workers inevitably use as they devise materials and plan sequences of instruction. Examples of concepts, issues, and other units of structure may be found by checking the materials listed in the bibliography.

Generalizations. Broad generalizations stated at a high level of generality have not been used to any great extent as components of structure in current projects. For example, in some recently published guides for statewide or school system use may be found such broad generalizations as the following: Democracy implies a way of life as well as a form of government. Change does not necessarily imply progress.

Primary emphasis in current projects appears to be on the use of concepts, concept clusters, themes, and questions that may be joined in the form of generalizations as inductive approaches are used. It appears that smaller units of structure are more useful in devising teaching strategies, designing units of study, selecting content, and preparing materials for students.

Structure of Disciplines. Another development that should be studied by curriculum workers is the way in which the structure of disciplines is specified for curriculum planning. The work of Senesh and his associates provides a model in which the main ideas or "contours" of a discipline may be linked together to show relationships (12). The following excerpts are illustrative of key concepts that are used in outlining the structure of different disciplines:

Economics: scarcity, specialization, the market, factors of production, money, transportation, spending, saving, income, employment, economic values

Political Science: wants, demands, screening of demands, issues, authorities, unit, regime, decision making, allocations, binding decisions, power, control, support

Sociology: values, norms, social institutions, organizations (business, political party, school, church), groups (family), social aggregates (classes, communities, ethnic groups), modification, support

Anthropology: man as a social, cultural, mammalian animal; needs, social structure, tradition, change, innovation, simplification, complication, evolution of culture

Geography: physical, biotic and societal phenomena, space, time, geographic facts, scale, distributions, areal associations, spatial interaction, regions, areal differentiation.

A distinctive feature of each of the above outlines of structure is the manner in which the concepts are related in a flow chart (12).

Inquiry Process Components

Models. Process aspects of structure may be identified in new materials in several forms. One form includes models of inquiry that may be used across disciplines and models that may be used within a discipline. For example, in one project (4) the following model is suggested as a mode of inquiry that can be used in both historical and social scientific studies:

Developing hypotheses that account for relationships among phenomena
Asking the proper questions to guide the search for data
Uncovering the relevant data in source materials
Validating, modifying, or rejecting hypotheses.

The following model has been proposed for the rational analysis of economic problems (13):

Defining the problem, considering "where we are in relation to where we want to go"
Defining goals and arranging them in order of priority
Proposing alternative ways of attaining stated goals
Analyzing the consequences of the alternatives and selecting the best.

Modes. Another form in which inquiry aspects of structure may be identified is in the emphasis given to basic modes or styles of inquiry. Of the three major traditional modes of inquiry discussed by some philosophers of science, historical and scientific are being given major attention in new materials which also include some attention to the geographic mode of inquiry. For example, most current projects employ the historical mode with its emphasis on probing questions, themes, criticism, analysis, and synthesis of source materials, and the making of interpretations. And most of the projects employ the scientific mode with its emphasis on objectivity, empirical methods, adequacy of sampling, testing of hypotheses, replication, and public review of findings. Several projects are developing materials in which the geographic mode is evident with its emphasis on field work, mapping, photo-interpretation, and conceptual analysis of distributions, associations, interactions, and regions.

Techniques. A third form in which inquiry processes may be identified is in the methods and techniques of inquiry that are emphasized. The most popular method of inquiry is the critical analysis of selected readings which range from such great documents as the Constitution and the Declaration of Independence to short anecdotes. Typical

practice is to provide questions which students can use to guide their analysis of selected materials. In a few instances provision is made for experiences in which students themselves can formulate some questions, thus adding another dimension to inquiry. Other techniques of inquiry that are used far less frequently than critical analysis of sources may be noted as follows: direct observation, interviews, case study, role playing, simulation, small group experiments, mapping, graphing, photo-interpretation, field study, and the interpretation of maps and other graphic materials.

Limited Inquiry. If inquiry is viewed on a continuum ranging from none (straightforward exposition) to full or complete inquiry (independent research), it can be said that most current projects provide for limited inquiry. For example, the typical procedure is to set the stage, clarify the problem, suggest questions or hypotheses to guide study, and then have students apply the questions to preselected materials in order to draw conclusions.

No program has been found in which students engage in the full process of inquiry that involves them in the identification, selection, and definition of problems, formulation of hypotheses or questions, selection of a sample, and collection and assessment of information from a variety of relevant sources on their own. Rather, emphasis is being given to those phases of inquiry that involve students in gathering data from selected sources and drawing conclusions. However, there are materials under development that will provide opportunities for students to engage in more complete forms of inquiry than are now possible with available materials (e.g., 3, 4, 7, 10, 14, 16).

Skills. Considerable use is being made of basic skills that are essential to the phases of inquiry that are being stressed in new materials. Reading skills are of top priority in analyzing source materials. Listening skills are essential to participation in such popular activities as follow-up discussions, use of recorded material, and question-directed analyses of issues and problems. Note-taking, outlining, and reporting skills (oral and written) are also widely used along with the interpretation of pictorial materials and maps.

Considerably less attention is given to the skills involved in map making, the construction of graphs, tables, and charts. In short, reading skills are central, followed closely by other language skills. This is not surprising when one recognizes that students are involved primarily in limited phases of inquiry as noted above.

Value Components

Value components of structure have not been given as explicit attention by curriculum theorists as have the conceptual and inquiry components. At times values have been stressed in relation to methods of inquiry, for example in connection with scientific methods in which objectivity, skepticism, and other values are mentioned. A promising development in some projects is to clarify values that are characteristic of rational inquiry. For example, in one project specific attention is given to objectivity, skepticism, respect for evidence, and awareness of values in the selection of facts and the making of interpretations (16). In another project attention is given to such scholarly values as rational approaches to social problems, respect for evidence, skepticism, objectivity, free examination of social attitudes and data, independent thought, appraisal of information before accepting evidence and generalizations, curiosity, and knowledge for the sake of knowledge (19). In most project materials one can find either an explicit or implicit emphasis on the values that characterize rational inquiry.

Another aspect of the value component of inquiry has to do with the difference between historical and scientific research. High value is placed on the development of principles and theories that have widespread or universal application in the sciences. In history, on the other hand, greater value is placed on the particular aspects of a given series of events. Historians place higher value on the humanistic and subjective aspects of mankind's activities than do social scientists. There is a place for both, and materials on the nature of history (e.g., 4, 16) are being developed along with those on the nature of social science (e.g., 3, 4, 7, 8, 16).

Objectives of Instruction

Objectives of instruction are fairly consistent with the primary orientation of project materials and the emphasis on components of structure as outlined above. Specific objectives are directly related to the development of conceptual, inquiry (or skill), and value elements of the instructional program. For example, in one project units are being devised to develop basic concepts in depth (16). In another, the taxonomy of educational objectives (1) is being used to indicate specific objectives that range from knowledge, comprehension, and application, to analysis, synthesis, evaluation (4). In general, it appears that a major

emphasis is being given to objectives related to intellectual development rather than to those associated with social and emotional development.

Organization of Instruction

An examination of patterns of organization of lesson plans, units of instruction, courses of study, and overall programs clearly indicates that logical aspects are being given consideration along with psychological. For example, both lesson plans and units of instruction are being organized to show relationships between concepts to be developed and their use in analyzing materials and making comparisons. Thus in a unit on Japan, the concept clusters, Major Landforms and Factors of Production, are suggested for use in analyzing conditions in Japan and in comparing Japan and other places (10).

Another direction in patterns of organization is related to the issue of separate discipline *vs.* multidisciplinary and interdisciplinary approaches. Most of the new materials use whatever approach seems to be most effective in terms of objectives. Thus one can find an emphasis on separate disciplines when the focus of a part of a unit or a unit is primarily on economic, geographic, or other aspects of a society. Multidisciplinary approaches are evident in area studies of such places as Japan, India, or the Middle East (3, 10, 19). In these area studies, however, it is easy to spot a particular emphasis in different sections, e.g., geography, history, economic activities, etc.

In fact, as one examines guides used in the school, even so-called integrated programs, it is possible to identify a separate emphasis on a given field followed by other fields. The ideal of a truly interdisciplinary program has not been achieved in either new materials or past programs. A primary reason is the lack of unifying theory in history and the social sciences. Until unifying theories are developed, curriculum workers in cooperation with specialists from the disciplines will have to do the best job they can in highlighting relationships within and across disciplines.

Teaching Strategies

Inductive approaches in which guided discovery is dominant are favored in most of the new programs. As indicated earlier in the section on *Inquiry*, students are provided with opportunities to analyze materials and to formulate interpretations and generalizations. The teacher's role is primarily that of a questioner who guides study, discussion, reporting, and self-evaluation in ways that promote the development of competence

in using such cognitive processes as classifying, inferring, hypothesizing, and generalizing in effective ways.

Along with the general emphasis on inductive approaches may be noted the use of a variety of expository approaches to the development of key concepts and basic skills. For example, a common practice is to provide straightforward instruction on the development of such concept clusters as Factors of Production and Social Change so that they can be used analytically by students as they study selected materials. Direct attention also is given to such skills as note-taking, outlining, and reporting so that students will use them effectively as they are guided to analyze materials and formulate hypotheses and generalizations. In addition, a lecture, a filmstrip, or other presentation may be made to give depth or background to a topic that is under study.

Strategies suggested for use in handling value aspects of instruction typically include the following: clarifying the issue and related values, gathering information, considering the priority of values, considering consequences of various alternatives, and appraisal of the grounds for various positions in terms of consistency and completeness. For example, in a situation where rights of freedom of speech may clash with property rights because of the possibility of a demonstration or riot, attention might be given to relevant information, the pros and cons of various alternatives, review of consequences, and consistency of arguments for various positions.

In one project the foregoing are blended with analytical concepts and incorporated in two different strategies (14). One strategy involves the class in an analytical discussion of various phases of a given issue in which the teacher's role is to guide exploration of all relevant aspects of the issue. The second strategy is one in which a student takes a stand and defends it as the teacher asks analytical questions in a Socratic manner.

Instructional Media

Collections of readings that include both primary and secondary sources are dominant in most of the new programs. In fact, it is apparent that students who possess a high level of competence in reading should do well with the new social studies materials. And those students who can do critical reading–ferret out issues, clarify terms, detect assumptions, draw inferences, etc.–should do especially well!

Along with the emphasis on collections of readings and other sources of data is the emphasis on transparencies which are being used

in a large number of projects to present economic, geographic, and historical data. Slides, filmstrips, and other standard audio-visual materials are also widely used. Simulations in the form of games are being developed in a few projects (4, 8, 11), realia are being used extensively in at least two projects (2, 6), and a systems approach is being used in an economics project (17).

Evaluation

Evaluation of instructional programs and new devices for use in evaluating students' learning need to be considered by curriculum workers as they examine new materials. The primary approach to evaluation of instructional programs has been classroom tryout in which feedback is obtained directly from teachers and students. Because of the prohibitive costs no project, to the knowledge of the writer, has been able to launch a complete and exhaustive evaluation that includes attention to the many relevant variables that should be investigated. Hence, it seems to be fair to say that the evaluation of instructional programs (including the writer's own project) could be improved. On the other hand, it can be said that project personnel have given more attention to evaluation of materials than they did in the past. Some individuals appear to have a double standard—an insistence on depth evaluation. What is needed is a thorough evaluation of all materials that are considered for adoption.

Some promising evaluative devices are being used in certain projects. These range from open-ended interviews and essay items to tests of cognitive preference for the social sciences as noted in the ASCD booklet, *New Curriculum Developments* (9). Curriculum workers will find that various adaptations of assessment devices can be made to local situations if they are not suitable for adoption in their original form.

Teacher Education

It is generally conceded that teacher education is the key factor in program implementation. The massive programs launched by various groups in science, mathematics, and foreign language education have not been matched by groups in social sciences education. The most that can be reported is that some teachers and curriculum workers have been involved in conferences, workshops, orientation meetings, and training sessions conducted by centers in which new materials are being

developed. The NDEA summer institutes are helpful but reach a comparatively small number of teachers.

Some help can be obtained by examining teachers' guides, background papers, suggested bibliographies, and other project materials. Most projects have tried to provide guides and other resources that will enable teachers to provide instruction in ways that are consistent with stated objectives. In addition to getting immediate help from such materials, it is possible for curriculum personnel and collegiate personnel to derive clues for planning and shaping in-service and preservice programs that nurture the backgrounds needed to assess and utilize new directions as they are emerging in the social studies. There is no doubt but that the area of teacher education is one of the most challenging and difficult that confronts us at the present time.

Analytical Questions for Use in Reviewing New Programs and Materials

As stated in the introduction, there is need for an approach to the study of new directions as well as for information about new directions. The following list of questions is designed to facilitate the gathering of information that is needed to make a critical assessment of new materials. It is assumed that after relevant information is gathered, curriculum workers will make judgments about new materials in terms of criteria that are relevant in their own situations. These questions, therefore, are suggested as the first part of an analysis that involves both data gathering and the application of criteria. The list has deliberately been limited to questions related to the preceding discussion. Other questions may be added to get at specific concerns of curriculum planners in a given situation.

Primary Orientation

Is primary emphasis given to the development of competence in handling social issues and problems?

Is primary emphasis given to the development of competence in using conceptual tools and inquiry processes drawn from the disciplines?

Are variants or combinations of the above emphasized?

Foundations

Disciplinary. What disciplines are used as sources of content, processes of inquiry, and values?

What applications of the foregoing have been made to units of study at different levels of instruction?

Social. What consideration has been given to societal values? Social changes, problems, issues? Adaptations to different settings?

Psychological. What consideration has been given to cognitive and affective processes? Motivation? Conditions of learning? Developmental stages? Individual differences? Transfer? Cumulative learning?

Structure

Substantive Elements. What units of substantive structure have been identified? Concepts? Concept clusters? Generalizations? Themes? Issues? Problems? Questions?

What schemata or models have been devised to show relationships among substantive aspects of structure?

Inquiry Processes. What major modes of inquiry are included? Historical? Geographic? Scientific?

What methods of inquiry are included? Documentary analysis? Field study? Experimental? Survey? Case study?

What specific techniques of inquiry are included? Analysis, synthesis, and interpretation of source materials? Production and/or interpretation of graphic and pictorial materials? Direct observation? Participant observation? Interview? Questionnaire?

Content analysis? Role playing? Simulation? Cross-cultural comparison? Critical incident? Value analysis? Experiment?

What attention is given to related skills? Locating, organizing, and evaluating information? Reading? Listening? Communicating in oral and written form? Interpreting graphic and pictorial materials? Working with others? Handling time and chronology?

Values. What values of rational inquiry have been identified? How are values related to other aspects of structure?

Objectives of Instruction

What objectives are specified? Substantive? Process? Affective?

What use has been made of the taxonomies of educational objectives?

What relationships are indicated between objectives and organization, teaching strategies, instructional media, and evaluation?

Organization of Instruction

What patterns or models are used for lesson plans? Units? Courses? Organizing the overall program?

What sequences are suggested for introducing and developing conceptual, process, and value components of structure and inquiry?

What use is made of single- and multi-disciplinary approaches?

Teaching Strategies

What strategies are suggested for conceptual, process, and value dimensions of the program?

What emphasis is given to inductive strategies? Expository strategies? Combinations of inductive and expository strategies?

What cognitive processes (e.g., classifying, inferring, applying, hypothesizing) are built into the strategies?

What guides are provided for teachers? Lesson plans? Units? Course outlines?

Instructional Media

What media are utilized? Readings and other printed materials? Tapes and other auditory materials? Transparencies and other visual materials? Field trips and other community resources? Films and other audio-visual materials? Simulations? Realia?

How are materials packaged? As a system? As independently usable parts?

Evaluation of Learning

What devices are provided for appraising conceptual outcomes? Process outcomes? Affective outcomes?

What devices may be used for evaluation by the teacher? Student self-evaluation?

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Vocational Education Looks to the Future

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VOCATIONAL education in the United States appears to be entering upon a period of expanded development, as measured by funds appropriated, popular interest, and public expectation. In deciding what directions this development should take, leaders in education face a number of difficult and complex issues which call for the most careful examination of relevant facts and a willingness to be guided by them. The temptation to use the new resources of finance and prestige to create more programs in the traditional mold is very great (1, 2). In some cases this temptation has already proved to be overpowering. Yet nothing is clearer than the fact that the traditional practices of the Smith-Hughes era are incompatible with the modern world of work and with the educational necessities of the modern worker. Still, this is not a time to substitute quickly a new "blueprint" for the old—a pattern which could soon become as rigid and stereotyped as the one it has replaced. A blueprint is not the present need. The complexity and diversity of our society and our economy call for a period of research, of dialogue, and of thoughtful planning, followed by experimentation and imaginative innovation. Flexibility and diversity should be the keynote.

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To understand the nature of the vocational education required by contemporary American society, one must understand the nature of the occupational system which has developed in that society. A free and dynamic society generates a dynamic and fast-changing occupational system, whereas the historical, orthodox approach to vocational education has been geared to a more stable and a more slowly changing system. Plans for the future of vocational education must take full account of the direction, dimensions, and speed of significant occupational trends (8).

Trends in the World of Work

Looking back over the history of work, the work role, and the preparation of workers, we become aware of massive changes, culminating in important recent developments. In primitive society all work tasks were woven into the fabric of daily family and social relationships. There was no work that was outside the observation and common experience of all youth. Learning how to do the necessary tasks was a simple matter of observing, imitating, being tutored, experiencing, maturing. As civilizations developed, specialized and differentiated work roles appeared, leading to more complex occupational structures. Many jobs, or tasks, required increased skill, creating the need for systematic teaching of the young, by parents or older workers, and this gave rise to various forms of apprenticeship in most jobs involving any degree of skill. The great majority of workers still performed at unskilled or low-skilled levels. Except for a very few jobs in the mercantile and scholarly occupations, nearly all work involved direct human muscle power. Education, even to the level of bare literacy, was necessary for only a few workers. The work world was stable, with few changes from one generation to the next. An occupation learned in one's youth could be counted upon to provide a livelihood well into old age. The range of occupations was limited and most jobs were visible and familiar to growing youth (3, 4).

The industrial revolution brought the next great change. Essentially, it replaced human muscle power with mechanical power and converted men into machine tenders on a massive scale. Many jobs moved into factories and beyond the daily observation of youth. The assembly line type of mass production which ultimately emerged required of each worker only a few repetitive skills, and general education not much beyond basic literacy. Many more highly skilled jobs appeared, but the great bulk of workers were still not to be found in them. Almost half of the work force in America continued to be engaged in food production, until well into the present century. Most of these workers learned their

work by on-the-job, on-the-farm experience and were semiskilled at best. Although the pace of change increased, an occupation, once learned, provided most workers with lifetime salable assets.

With continued, but gradual modification and complexity, these features characterized the American occupational system into the early years of this century. From this period of occupational life came the assumptions which supported the provisions of the early federal vocational legislation (the Smith-Hughes Law), which, in effect, created a national system of vocational education. These assumptions were reasonably consistent with the economic and social realities of the time. However, they represent a vastly oversimplified view of the nature of the occupational world in modern America, and of the issues that confront vocational education today.

Technology's Demands on Education

The most recent, and continuing change in the work world has taken place as the current scientific-technological revolution succeeded or evolved from the industrial revolution (5, 6, 7). Whether one considers this as an extension of the older movement or actually different in kind, as well as in degree, is immaterial. Its effects are what are important and they have been truly revolutionary. Two of its main streams of development have taken the form of scientific and mechanized agriculture, bringing an astonishing increase in food production, and automation in the factory and the office. The rapid perfection of computer technology and its widespread application to a great range of tasks have intensified and accelerated the effects on occupational life of the new technology (18). New relationships have been introduced between man and his work. The requirements of work and of preparation for work are different in almost every important way than they were only a few short years ago, and the change is irreversible. The outlines of tomorrow's world of work are beginning to take shape, and they share few of the characteristics of yesterday (18). A major new element in occupational life will be not simply change, which we have always had, but a pace of change which is exponential in character.

Mechanization and the application of scientific knowledge to crop and livestock production have, in a space of 50 years, reduced the nation's on-farm manpower requirements from half the total work force to five percent of the work force today. Men as machine tenders are giving way rapidly to machines as machine tenders in factory and office. The amount of work which can be accomplished (productive

output) per man or machine hour of effort has increased enormously, and continues to increase without slackening. The productivity of the American economy has risen by 80 percent since World War II. This has been accompanied by major shifts in the job structure of the nation. Today, only one of every three workers is engaged in producing goods, food, or housing. Two out of every three jobs are to be found outside the categories which provided the majority of employment opportunities only two decades ago.

Today's job market is highly complex and sophisticated—structured to an expanding market economy in a largely urban setting. Although some jobs are carried on within the observation of children and youth, the greater number are of such a nature that young people cannot share in them, vicariously or otherwise. As a result, and because the participation of youth in the labor market is increasingly limited, most young people are aware of only a very few of the vast number of existing and emerging occupations from which their own career choices could be made (4).

The new technology has brought other and new demands upon education. It has raised the threshold level of general, academic education required for most jobs from the eighth-grade achievement of a few years ago to something approaching twelfth grade (3, 4). It will continue to rise. High school graduation is now a minimum ticket of admission to most industrial and business training programs. A substantial basic education has even greater importance than to provide eligibility for the first job. Even more important than the acquisition of first-job skills is the capacity of the worker to keep skills up to date and the willingness to learn more sophisticated skills (9). This capacity depends greatly upon the amount and the quality of basic, general education which the worker possesses.

Vocational education has traditionally emphasized manual and technical skills, giving low priority to general, liberal studies. Its goals have been terminal and first-job oriented. One of the first and clearest implications of the new technology is the need for all workers to have higher levels of basic education. As Brookover and Nosow have stated in their penetrating analysis of this question:

> The most valuable vocational training that can be provided in the elementary and secondary school for most youths is, therefore, in the basic general education program which has not previously been identified as vocational education (4).

Arrangements which demand as much as half of the daily school time of high school youths for learning specialized job skills clearly

reduce the opportunity of these young people to secure this basic general preparation. Yet we find many vocational planners urging such arrangements for two, three, and even four years of the high school program.

The emerging manpower profile suggests frequent readjustment by most workers to new occupations as their working years pass. The half-life of specific job skills and specialized knowledge grows continually shorter (3, 6). In recognition of this, Brookover and Nosow have this to say:

> This suggests that the major part of our education for vocations should not be oriented to training for a specific occupational career. Rather, the vocational education program should be designed to prepare youth for a continuing program of continuing education throughout life. Vocational education which is designed to prepare an individual for a particular occupation before he completes his preservice education may serve as a handicap rather than an advantage to a large segment of the working force.
>
> . . . It seems likely, therefore, that both the needs of society and the occupational adjustment of individuals will be better served if specific vocational training is provided at the latest possible period in the educational career of the individual (4).

Increasingly this will be the immediate post-high school period (10).

Career Choices in the Schools

Vocational enthusiasts are fond of dividing high school students into two theoretical streams—the college bound and the non-college bound, and they assume that all students can be identified with one of these two categories during their early high school years. They then reason that all who are not bound for college are in need of training in "salable" skills, meaning the specialized job skills of some standard occupation, and they argue that it is the task of the high school to provide these skills. They maintain that employers expect the schools to provide these skills, and that employment is not open to those without them (1). Others offer a different and additional justification for offering vocational education during the high school years. This is the belief that many students who will not accept the discipline involved in the study of academic courses will remain in school if allowed to escape from such requirements and to spend their time in practical or nonacademic activities. There is little evidence to support any of these assumptions, and a great deal of evidence to the contrary.

Studies by Ginzberg, Super, Holland, Flanagan, and others demonstrate the error of making a final career choice much before the age of

high school graduation, and strongly suggest that preparation for a particular job be delayed as long as possible (12). As to sending youth away from high school with salable skills, we have already seen that in our modern society, the most salable of all skills are precisely those associated with the general academic learnings which are minimized, if not largely neglected, when specialized job skills are introduced (13). Employers have never placed great weight upon the specialized skills that can be learned in a high school program, with the possible exception of stenographic and typing skills.

A very recent national study of graduates of high school trade and industrial courses, conducted by the American Institute for Research, revealed that only 29 percent of these graduates were employed in the trade for which they had received training. An additional 18 percent were reported to be working in closely related occupations. These total less than 50 percent, and led the researchers to state in their report that: "The majority of vocational graduates do not enter the occupations for which they trained in high school" (14). What the study did not disclose (because it was not included in the data secured) is the fact that the dropout rate from vocational courses is greater, and often considerably greater, than from general academic programs (15). The evidence of experience does not favor the idea that the opportunity to leave the academic track and concentrate on vocational courses will so motivate potential dropouts that they will remain in school.

Perhaps the most cogent comment upon the college–non-college issue so often raised by vocationalists has been made by Francis Keppel, former U. S. Commissioner of Education. In a paper presented at a Conference on Poverty in America (16) he said:

> Far too often we have tended to get muddled and befuddled about the real purpose of basic education. Today we see in the newspapers solemn warnings that our schools are actually cheating a vast majority of our students by requiring them to take basic academic subjects–so-called college preparatory subjects–when they do not plan to go to college. They assume that because these subjects are necessary for college they are unnecessary for anyone who does not go to college.
>
> To assume that academic subjects are merely an obstacle course for college admission is to miss the whole point of liberal education. It is in the great tradition of our secondary schools that history and geography, literature, science, and mathematics be made available to all our citizens. If their only value were to test the best and frustrate the rest, then we would wisely abandon them even for the college bound.

Specific Vocational Education

There are still other undesirable effects which result from a too early inclusion of specific vocational education in the curriculum. Students who are directed into specific vocational training in their secondary school programs will find that the range of occupational statuses to which they may aspire has been drastically limited (4). Since school achievement is highly conditioned by the educational and occupational status of children's parents, children of lower socioeconomic backgrounds, in large numbers, are early identified as non-college bound. They typically gravitate, in disproportionate numbers, to the vocational track and thus such an approach to curriculum planning becomes an effective means for perpetuating social and economic stratification. Given the additional fact that the Negro minority forms the largest segment of the lower socioeconomic population group, the result is an unintended, but very real kind of racial discrimination. These outcomes are readily observable in most large urban programs of vocational education at the secondary level (13). Efforts to allocate youth to various occupational statuses early in the educational program tend to interfere seriously with their freedom of occupational choice and reduce the opportunity of many to achieve higher status occupations. This was not nearly as true a few decades ago, but will become increasingly so in the future.

When we consider these and other facts and forces which prevail in our post-industrial scientific-technological society, what kind of curriculum arrangements for vocational education make sense? It seems clear that they need to include the following features:

- The introduction at the elementary school level, and continuing at least through grade 12, of systematic learning about and exploration of occupations. The final stage of this process would be choice of a general career area. This would be followed by intensive, work-oriented training relative to a cluster or family of jobs in the chosen area, or by further preprofessional studies. Expert guidance and counseling at all stages of this process is assumed as a necessary concomitant.

- A great broadening of the range of occupations for which vocational education will offer general preparation. The list of occupations which has been included in vocational programs has, up to now, been limited, stereotyped, and relatively unchanging.

- The postponement of special preparation for an occupation to the latest possible period in the educational career of the individual. We

should look forward increasingly to the 13th and 14th years of education to accomplish this (17).

- A flexibility of program which will permit the rapid adjustment of the vocational offerings to the realities of the occupational world; and prevent the introduction or survival of obsolescent offerings.

- The abandonment of the attempt to predetermine the occupational-educational destiny of youth in school on the polarized concept of college bound *vs.* work bound.

- Recognition that study and mastery of the basic academic learnings constitute not only the indispensible foundation for job training and job security but, in reality, have become, in themselves, the most salable and most enduring job skills that the worker can possess.

- A curriculum which will prepare youth to expect and accept change, rather than stability, as a condition of occupational life, and which will develop the attitudes and skills needed for continuing, life-long education.

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Changes in Health Education and Physical Education

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PREVIOUS reports of the ASCD Commission on Current Curriculum Developments [2,3] have explored recent efforts to improve the curricula of health education and physical education. The following expressions are intended to update and expand those reports.

Health education and physical education are often organized within one administrative unit, yet these should be considered separate areas of the curriculum. Although allied in function through certain common goals, each field can be distinguished from the other in behavioral objectives, content, learning activities, and procedures.

The expedient of scheduling health education and physical education within one time block can be and often has been detrimental to each discipline. In some instances health education programs have been initiated to the detriment and expense of physical education programs;

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in others, health education programs have been weakened because teaching assignments were made on the erroneous assumption that a well-qualified physical educator was necessarily motivated and well-qualified to teach health education.

The assignment of health education responsibilities to a person already fully preoccupied with responsibilities in another area of the curriculum cannot result in a maximal effort in either field.

It has been pointed out that in view of the multidisciplinary nature of health instruction, the enormity of the task of keeping up to date with the voluminous amount of new and changing scientific information, the needed skill in the use of a variety of teaching methods, and the need for knowledge of the location and use of a wealth of materials and other resources, a health education specialist has a full-time occupation.[4] Competency and genuine interest of the teacher in his respective subject field are major factors which will ultimately influence the design of the health education and physical education curricula. Responsibility for programs of quality in these areas rests with the school administration representing the governing board of each school district. Each field should be planned and incorporated into the curriculum on the basis of its contribution to the needs of youngsters.[5]

Developments in Health Education

In many school systems where there are no organized health education programs, there is a tendency to develop fragmented programs. Generated by social concern over the health behavior of the young, bits and pieces of the health education curriculum are being inserted into the curriculum in haphazard fashion. This practice is observed with alarm by some health educators; others consider it, at least, as a "foot-in-the-door" to the total curriculum. It is conjectured that fruitful investigation of one aspect of health education may lead to further exploration of other aspects leading eventually to a complete program. In many instances, this viewpoint has been justified. Programs begun at the secondary level have filtered down to the elementary level. Conversely, programs initiated at the lower level have been continued later at the secondary level. Alcohol education, smoking education, drug abuse edu-

[4] Elena M. Sliepcevich. "The Responsibility of the Physical Educator for Health Instruction." *Journal of Health, Physical Education, and Recreation* 32: 32-33; January 1961.

[5] *Suggested School Health Policies.* Fourth edition. Chicago: National Committee on School Health Policies of the NEA and the AMA, 1966. p. 8.

cation, safety education, venereal disease education, and sex education are among the components most frequently singled out for concentrated attention at one time or another as these areas have been perceived as problems by influential individuals and groups at the local, state, and national levels.

Means[6] has briefly traced factors influencing the health education curriculum over the past 170 years. Textbooks, courses of study, subsidized and mandated education by legislation, and pressures exerted by various health- and/or education-oriented groups are factors that seem to have had an abiding influence on the health education curriculum throughout the years.

Sex Education

The accelerating activity of schools to incorporate sex education into the curriculum provides evidence of the cumulative effects of the various forces:

1. *Pioneers.* The happy coincidence of the availability of dynamic leadership when the need for sex education in the schools was recognized by the community stimulated the development of sex education programs of long standing.

Over the past quarter of a century sex education has been considered an integral part of the curriculum in such communities as University City, Missouri; Toms River, New Jersey; Evanston, Illinois; and San Diego, California. The initiators of each of these programs, Miss Helen Manley, Mrs. Elizabeth S. Force, Miss Irma Fricke, R.N., and G. G. Wetherill, M.D., respectively, not only pioneered sex education programs, but also have continued to provide inspirational leadership in this aspect of health education. Their programs have been useful as models for other school systems.

2. *Organizational support.* There has been an ever increasing flow of recommendations urging the inclusion of sex education in the school curriculum. It is interesting to note that the American Association of School Administrators, as early as 1941, recommended inclusion of sex education in the curriculum.

An example of the resolutions of diverse groups asking the schools to accept the responsibility for teaching sex education is the widely quoted and endorsed resolution passed in 1964 by The Joint Committee on Health Problems in Education of the NEA and AMA:

[6] Richard K. Means. "The School Health Education Study: A Pattern in Curriculum Development." *Journal of School Health* 36:1-2; January 1966.

Whereas, the altered structure of our society has resulted in greater permissiveness, and changing moral values, and

Whereas, the years when sexual drives are recognized to be approaching a peak present the need for important and even urgent decisions on the part of youth, and

Whereas, the exploitation by all forms of mass media of the sensual aspects of sex has placed undue emphasis on erotic behavior, as opposed to mature, responsible love relationships, and

Whereas, the disparity between expressed beliefs and observed actions of many adults has not passed unnoticed by the youth of our country, and

Whereas, the persistent occurrence of out-of-wedlock pregnancies and of venereal disease has been paralleled by a lessening of the restrictive effect on sexual behavior by either of these conditions, therefore be it

Resolved that the schools accept appropriate responsibility for reinforcing the efforts of parents to transmit knowledge about the values inherent in our family system, and about the psychic, moral, and physical consequences of sexual behavior, and be it further

Resolved that this be done by including in the general and health education curriculum the physiology and biology of human reproduction beginning at the elementary level and continuing throughout the school years at increasing levels of comprehension, and that the study of venereal diseases continue to be a part of communicable disease education during early adolescence, and be it further

Resolved that the concept of the family as a unit of society based on mature, responsible love be a continuing and pervasive educational goal.[7]

3. *An organization dedicated to developing man's sexuality.* The first public announcement of the Sex Information and Education Council of the United States was made in January 1965. Since that time this voluntary health organization has been instrumental in promoting sound sex education programs in the school and community. Through its executive director, Mary S. Calderone, M.D., MPH, and her staff, SIECUS has published, made speeches, discussed, communicated, cross-fertilized, served as a forum, and acted as a clearinghouse for exchanging information. It has stimulated concern of communities and has offered aid for sex education in its broadest aspects. In essence, it has made giant strides toward fulfilling its purpose:

To establish man's sexuality as a health entity: to identify the special characteristics that distinguish it from, yet relate it to, human reproduction; to dignify it by openness of approach, study, and scientific research designed

[7] "NEA-AMA Joint Committee Resolutions." *Journal of Health, Physical Education, and Recreation* 35 (7): 14; September 1964.

to lead towards its understanding and its freedom from exploitation; to give leadership to professionals and to society, to the end that human beings may be aided towards responsible use of the sexual faculty and towards assimilation of sex into their individual life patterns as a creative and re-creative force.[8]

4. *Governmental action.* Legislature has played a prominent role in promoting, limiting, or prohibiting sex education in the schools. Oregon, for example, has been a front-runner among the states encouraging sex education; New York permits such programs providing that the participation is voluntary; while a few states have legislation mandating against the inclusion of sex education programs in the school.

Federal funds have been provided through the U. S. Office of Education to support programs on or including sex education. Funding is made through the following programs:

Aid to Schools in Low Income Areas

Supplementary Education Centers and Services for Elementary and Secondary Schools

Community Service and Continuing Education Programs ("University Leadership for Urban Progress")

Vocational and Technical Education, under which home economics activities and the training of home economics teachers and health professions personnel are supported

Guidance and Counseling Institutes, and Institutes for Advanced Study, in which family life and sex education may be included as appropriate for the subject matter of the Institute

Adult Basic Education Programs, in which course materials for teaching reading, writing, arithmetic, and speech are related to such "adult experiences" as homemaking and family relations.

A policy statement made in August 1966 by U. S. Commissioner of Education, Harold Howe II, explains the extent and control of the government's support:

The United States Office of Education takes the position that each community and educational institution must determine the role it should play in the area of family life education and sex education; that only the community and its agencies and institutions can know what is desirable, what is possible, and what is wise for them in this realm. To assist communities and educational institutions which desire to initiate or improve programs in this area, the Office of Education will support training for teachers and health and guidance personnel at all levels of instruction; it will aid programs designed to help parents carry out their roles in family life education and sex education. The

[8] "Why the Need for a Sex Information and Education Council of the United States as a New, Separate Organization?" *SIECUS Newsletter* 1 (1); February 1965.

Office will work closely with other agencies, both Federal and State, to ensure the most effective use of our resources in the implementation of this policy.

The degree of success of these federally supported programs will depend in large measure upon meaningful activities being taken pursuant to approval of the projects.

5. *Assistance from publications.* Various publications[9] which are intended to give aid and support to the teacher and administrators have come into being recently. Included among them are curriculum guides, guidelines, courses of study, textbook supplements, discussion guides, a series of pamphlets, a resource unit, and a suggested program. Their value will be realized as they are adapted to the needs of individual schools and communities.

Some danger has been seen in the rush to institute sex education programs. Calderone[10] states:

> The rush to climb on the sex education bandwagon is ill advised if it results in poor efforts, half-baked programs, and mistakes so glaring as to arouse community opposition to a pitch that will slam doors that may not be reopened for another generation.

If the watchwords are "activity alleviates anxiety," the educator must be cautioned that "activity" may also dilute results. Concern for improvement coupled with thought should be the guide for action. Health educators generally consider sex education as only one facet of a total health education program.

Unified Programs

In the broader context of health education, curriculum development in recent years has stemmed largely from local and some state efforts. The Denver Public Schools, for example, have based their health curriculum upon the findings of their study, *Health Interests of Children.*[11] Areas of health defined for inclusion in the curriculum were based upon detailed information on the health interests of youngsters at different grade levels.

A major contribution of the five year School Health Education Evaluation Study, Los Angeles Area[12] was the creation of a greater

[9] See Sex Education reference list on pp. 112-13.

[10] Mary S. Calderone, M.D., MPH, and Sally Fox. "SIECUS as a Voluntary Health Organization." Special Issue: "Human Sexuality and Education." *California School Health* 3 (1): 8; January 1967.

[11] Denver Public Schools. *Health Interests of Children.* Revised edition. Denver, Colorado: Board of Education, 1954.

willingness and desire on the part of school administrators to place effective health education in the curriculum. The study further provided an evaluation plan and framework for similar studies elsewhere.

The traditional health curriculum has been guided by local or state guides or courses of study. These have been unit centered and designed to "cover the field." As health facts have been discovered or developed at an ever increasing rate, the task has been to select the appropriate facts and insert them in units where they logically belong. In a recent analysis of the curriculum reform movement, Goodlad [13] warned of the dilemma education faces:

> The selection of the most significant bits of content no longer is difficult; it is impossible. Consequently teachers and pupils must seek out those fundamental concepts, principles, and methods that appear to be most useful for ordering and interpreting man's inquiries.

In recognizing the need for change, two current curriculum projects focused upon the conceptual approach to teaching health. One project was undertaken by the Health Education Division, Curriculum Commission, American Association for Health, Physical Education, and Recreation (NEA). The plan of action followed was to determine basic health concepts related to crucial health problems of school-age youngsters in the '60's and '70's. The publication, *Health Concepts: Guides for Health Instruction*,[14] is the product of the Commission's efforts. It provides a valuable structure which local and state curriculum committees will find useful as a guide for curriculum development.

School Health Education Study

The second project, the School Health Education Study, is perhaps the most comprehensive effort undertaken to improve the program of health education. Ole Sand described the Study's basic document, *Health Education: A Conceptual Approach to Curriculum Design*, as the most thorough analysis yet made of the field. He stated:

> It (the document) makes an important milestone in the progress and

[12] Edward B. Johns. "School Health Education Evaluative Study, Los Angeles Area: An Example of a Modern Evaluation Plan." *Journal of School Health* 32: 5-10; January 1962.

[13] John I. Goodlad. *Some Propositions in Search of Schools*. Washington, D. C.: Department of Elementary School Principals, NEA, 1962.

[14] American Association for Health, Physical Education, and Recreation. *Health Concepts: Guides for Health Instruction*. Washington, D. C.: the Association, 1967.

development of health education and is, therefore, of great interest to everyone concerned with curriculum and instruction.[15]

The School Health Education Study received financial support from the Samuel Bronfman Foundation from 1961 through December 1965. From July 1966 through June 1969 the Study is being supported by the 3M Company of St. Paul, Minnesota.

The Conceptual Approach of the School Health Education Study [16]: The conceptual approach consists of a hierarchy of concepts developed into a framework for the health education curriculum. Health, defined as "a quality of life involving dynamic interaction and interdependence among the individual's physical well-being, his mental and emotional reactions, and the social complex of his existence," is the comprehensive, generalized concept appearing at the highest level of the hierarchy. This concept embodies physical, mental, and social dimensions which are characteristic of all levels of the hierarchy.

The next level of the conceptual model focuses on three key concepts which characterize the processes underlying health and serve as unifying threads of the curriculum. These are:

Growing and Developing—a dynamic life process by which the individual is in some ways like all other individuals, in some ways like some other individuals, and in some ways like no other individual

Interacting—an ongoing process in which the individual is affected by and in turn affects certain biological, social, psychological, economic, cultural, and physical forces in the environment

Decision Making—a process unique to man of consciously deciding whether or not to take an action or of choosing one alternative rather than another.

The ten concepts at the next level of the conceptual structure serve as the major organizing elements of the curriculum reflecting the scope of health education. These concepts are in statement form and it is around these concepts that teaching-learning guides have been developed. The concepts are:

Growth and development influence and are influenced by the structure and functioning of the individual.

[15] Ole Sand. "Foreword." In: *Health Education: A Conceptual Approach to Curriculum Design.* School Health Study. St. Paul, Minnesota: 3M Education Press, 1967.

[16] An edited version of a presentation by Ann E. Nolte, Associate Director, School Health Education Study at the Fourth National Curriculum Conference, "Curriculum Designing for the Future." Association for Supervision and Curriculum Development, New York, New York, December 3, 1966.

Growing and developing follow a predictable sequence, yet are unique for each individual.

Protection and promotion of health is an individual, community, and international responsibility.

The potential for hazards and accidents exists, whatever the environment.

There are reciprocal relationships involving man, disease, and environment.

The family serves to perpetuate man and to fulfill certain health needs.

Personal health practices are affected by a complexity of forces, often conflicting.

Utilization of health information, products, and services is guided by values and perceptions.

Use of substances that modify mood and behavior arises from a variety of motivations.

Food selection and eating patterns are determined by physical, social, mental, economic, and cultural factors.

An understanding of the concepts may be achieved by realizing that each is expanded in subconcepts in the dimensions of the physical, mental, and social, in goals and in behavioral objectives. Also, each concept reflects the interrelatedness of the three key concepts.

Each of the concepts has been analyzed to determine its substance. This substantive element, the next hierarchical level, has been called a subconcept and is viewed in the physical, mental, and social dimensions. These subconcepts are supporting ideas which guide in selecting and ordering the subject matter of health education. They provide also a basis for the selection of desired behavioral objectives. At this subconcept level of the conceptual framework a transition is beginning to develop which will lead toward the operational aspect of the framework.

The long-range goals for each of the ten concepts have been derived from the corresponding concept and subconcepts. They serve as general guides for the desired outcome of a sequential program in health education from kindergarten through grade twelve. These goals and the more specific behavioral objectives have been stated in terms of three domains. These are the cognitive, which includes behaviors pertaining to "knowledge," "intellectual abilities," or "intellectual skills"; the affective, which refers to those objectives stressing "a feeling tone," "an emotion," or a "degree of acceptance or rejection." Objectives in these two domains were developed with the assistance of the *Taxonomy of Educational Objectives*. The action domain pertains to those aspects of health behaviors in which the individual actually applies knowledge and attitudes to a life situation. This classification was specifically developed

by the School Health Education Study writing group to serve the purposes and goals of health education.

The last level of the conceptual hierarchy includes the behavioral objectives, which are specific and operational. They are developed for each concept. There is a vertical organization at four levels of progression. This vertical organization reflects the educational levels of the behavioral objectives and content. Level I would denote the least complex objectives. In addition to the vertical organization, a horizontal organization denotes the sequence of objectives at a given level. The horizontal organization lends reinforcement to each learning experience and sets the stage for what is to follow. These behavioral objectives represent the priority in desired competencies.

The conceptual framework for health education is characterized by three qualities: (a) *adaptability:* it is designed for use at any level of progression from grades K through twelve; (b) *flexibility:* allowances are made for individual differences, community needs, and variations in administrative patterns; and (c) *permanence:* the discovery of new knowledge should not necessitate changing the elements which comprise the higher levels of the hierarchy.

The conceptual framework represents a theoretical model for health instruction. This model is translated into operational format in a teaching-learning guide for each of the four levels and for each of the ten concepts. Each component of the guide is related to the guide in reflecting a conceptual approach.

The information which appears in this presentation was taken from the book, *Health Education: A Conceptual Approach to Curriculum Design*, prepared by the School Health Education Study writers.[17]

Developments in Physical Education

The recent emphasis in physical education programs has been on perceptual-motor training, physical education for the mentally retarded, and movement exploration. All seem to bear out the significance that motor experiences make to the enrichment of human intelligence, development of personality, and preservation and extension of the culture.[18] There is some indication that physical education is moving toward a stage of sophisticated development which combines prior emphasis of participation, socialization, and physical fitness with an understanding

[17] School Health Education Study. *Health Education: The Conceptual Approach to Curriculum Design*. St. Paul, Minnesota: 3M Education Press, 1967.

of the interrelationships involving a knowledge of environment, movement, and man.

Perceptual-Motor Training[19]

Rapp[20] has indicated that the programming and research done in the past eight or ten years toward the effects of early motor training for the mentally retarded have stimulated further research for normal children at preschool, kindergarten, and primary levels. He further stated:

> It is generally agreed that children grow and develop neurologically in a definite recognizable sequential pattern. Most of our instruments used to assess intellectual development at infancy and in young children are based on developmental inventories which sample the neuromotor areas of development and the early perceptive abilities of the child. Each state of neuromotor development serves as a base for further development. As the child explores the relationship of his perceptions—auditory, visual, tactile, and kinesthetic—a coordinated development takes place in his neuromotor system. The awareness, skills, and information are carried over from one developmental level to another and are further developed and utilized in the next stage of development. When there is an omission or an interruption in development, the next level of neuromotor organization will be affected. There is some evidence that many of the learning problems in children can be traced to this developmental omission or interruption.
>
> In our work in "Head Start" and other programs which deal with young deprived children, we have seen the results of the lack of stimulation. A great number of these children have had an interruption or omission in the developmental stages due to deprivation of a physical, a social, and emotional, or a mental nature.
>
> Neuromotor organization is essential in visual perception and spatial relationships, and this definitely carries over into the early academic skills of reading and writing.
>
> The potential contributions of physical education or early motor experiences include an increased level of physical fitness, the acquisition of the necessary basic motor skills, and the development of desirable social skills and traits. These three objectives are interrelated, since performance of any motor skill is dependent on a minimal level of fitness, and the development of early social skills in group activity requires a degree of motor skill.
>
> The child's self-image is very important, for it determines how he interacts

[18] Naomi Allenbaugh. "Learning About Movement." *NEA Journal* 56 (3): 48 ff.; March 1967.

[19] See references on Perceptual-Motor Training, page 113.

[20] William E. Rapp, Consultant in Physical Education and Recreation, The Joseph P. Kennedy, Jr. Foundation. Presentation at the ASCD Fourth National Curriculum Conference, New York, New York, December 2, 1966.

with others. His ability to perform common skills—his range of movement and body control—his body figure—all affect his confidence and his willingness to attempt new activities. Self-image is related to success and success is necessary for continued motivation, and therefore, must be built into the activity. Planned achievement should be one of our teaching techniques in working with all young children.

The major purpose of the perceptual-motor program is to develop readiness to learn on a physiological basis by reproducing experiences which a normally developing youngster would undergo as he grows and matures.

The growth and development patterns through which all children move from infancy to childhood set the stage, in large measure, for all children's readiness to profit from formal instruction. Children differ from one another in physiological readiness to learn as they do in any other area.

Whether their intelligence is below average, average, or above average, whether their ability to learn is commensurate with their basic intelligence depends to a great extent upon whether or not they have sufficiently developed their perceptual-motor skills. Such skills do *not* develop automatically with the mere passage of time. Careful planning is needed to provide the rich learning enviroment which will afford the opportunity for all youngsters to fulfill their perceptual-motor development.

Through the perceptual-motor program, physical education is bridging the gap between the play area and the classroom. The potentially rich avenue of elementary school physical education is being explored.

Physical Education for the Mentally Retarded [21]

Dramatic results have been reported by Oliver and Corder [22] in studies involving mentally retarded boys taking systematic programs of physical education. Subjects in the experimental groups of both studies improved significantly, not only in the physical aspects, but also in emotional stability, medical evaluation, personality adjustment, and intellectual development.

It has been demonstrated that as the child becomes physically educated, his physical, mental, and social competencies improve.

[21] See references on Physical Education for the Mentally Retarded, pages 113-14.

[22] Project on Recreation and Fitness for the Mentally Retarded. "Activity Programs for the Mentally Retarded." Washington, D. C.: American Association of Health, Physical Education, and Recreation (reprinted from the *Journal of Health, Physical Education, and Recreation,* April 1966).

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Designed to give teacher direction in classroom activities leading to learning experiences in sex education.

Mary S. Calderone. "Planning for Sex Education: A Community-wide Responsibility." *NEA Journal* 56 (1): 26-29; January 1967.

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(Cost: $1.00 from California School Health Association, 693 Sutter Street, San Francisco, California 94102.)

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(Cost: $2.50 per copy from the Executive Secretary, Dr. A. O. DeWeise, ASHA, 515 E. Main Street, Kent, Ohio 44240.)

A guideline document intended to assist educators, school administrators, and health personnel in understanding the needs school children have pertaining to their sexuality; contains a list of resource materials for students and teachers at the end of each chapter.

Connecticut Advisory School Health Council. *Report of the Committee on Family Life Education.* (Mimeographed.) May 1965.

(By: Dr. Ruth Byler, Consultant, Health and Physical Education, State of Connecticut, State Office Building, Hartford, Connecticut.)

Six pages. Guidelines for organizing a sex education program in schools.

Joint Committee on Health Problems in Education of the NEA and AMA. Sex Education Series:

- *Approaching Adulthood,* 1963
- *Facts Aren't Enough,* 1962
- *Finding Yourself,* 1961
- *Parents' Responsibility,* 1962
- *A Story About You,* 1964.

(Cost: 30 cents per copy from AMA, Department of Community Health Education, 535 North Dearborn Street, Chicago, Illinois 60610.)

A series prepared to help parents and teachers in sex education. Each pamphlet generally discusses different age levels.

Lowell B. Jones. "How To Start a Sex Education Program." *Nation's Schools* 80 (1): 33-35; July 1967.

Description of procedure taken by Anaheim Union High School District in 1962; includes a list of 10 foolish notions about sex education written by Florence B. Bennell.

Helen Manley. *A Curriculum Guide in Sex Education.* St. Louis: State Publishing Company, Inc., 1964.

(Cost: $1.35 from State Publishing Company, Inc., St. Louis, Missouri 63136.)

A very practical guide written by a person who pioneered the field of sex education in the schools. The book is enriched by teaching suggestions growing out of years of experience with youngsters and teachers.

Sex Information Education Council of the United States. Discussion Guides.

No. 1. *Sex Education.* Lester A. Kirkendall, Ph.D., October 1965.

No. 2. *Homosexuality.* Isadore Rubin, Ph.D., October 1965.

No. 3. *Masturbation.* Staff, February 1966.

(Cost: 50 cents per copy from SIECUS, 1855 Broadway, New York, New York 10023.)

Intended for discussion leaders and for individuals interested in intensive self-motivated study.

Textbook supplements. Consult: Laidlaw Brothers; Scott, Foresman & Company; Harcourt, Brace & World, Inc.

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